

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WESTERN REGIONAL OFFICE

436 Dwight Street • Springfield, Massachusetts 01103 • (413) 784-1100 • FAX (413) 784-1149

10/20/05

MITT ROMNEY Governor

KERRY HEALEY Lieutenant Governor STEPHEN R. PRITCHARD
Secretary

ROBERT W. GOLLEDGE, Jr. Commissioner

OCT 2 7 2005

Town of Amherst Department of Public Works 586 South Pleasant Street Amherst, MA 01002

Address, MA 01002 Attention: Guilford Mooring, Supt. RECEIVED

OCT 2 8 2005

TIGHE & BOND

Re:

Amherst-DSWM-Landfill Old Amherst Landfill Route 9 (South Side)

Comprehensive Site Assessment SOW Approval - Modification

05-008-001 BWPSW12

Transmittal #W052202

Dear Mr. Mooring:

On July 6, 2005, the Department of Environmental Protection (the Department) issued its approval of the Initial Site Assessment (ISA) report and Comprehensive Site Assessment Scope-of-Work (CSA SOW) for the Old Amherst Landfill ("the landfill"), located south of Route 9 (Belchertown Road) in Amherst. The ISA Report/CSA SOW was prepared by Tighe & Bond, Inc. (T&B), on behalf of the Town of Amherst (the Town). On September 23, 2005 the Department received additional information from T&B concerning modifications to the CSA SOW, as discussed at a site meeting on September 15, 2005.

#### DEPARTMENT DETERMINATIONS

The Department has prepared this modification, under the authority of MGL Chapter 111 Section 150A and the regulations promulgated thereunder at 310 CMR 19.000. This document is a permit issued in accordance with the review procedures stipulated at 310 CMR 19.037 and 19.039 and is subject to all of the provisions contained therein.

The Department hereby modifies its July 6, 2005 ISA/CSA SOW permit approval as outlined below. All other conditions of the July 6,

2005 ISA/CSA SOW permit approval remain unchanged and in effect.

- 1. Existing site groundwater monitoring wells 3-68, 11-71, 3-80, 1-83, 2-83, 3-83, 2-85, 3-85, 5-89, 6-89, 1-94, 1-03, and 2-03 shall be sampled during one monitoring round and analyzed for the parameters outlined at 310 CMR 19.132(h)(1-3), including RCRA 8 metals (as total metals), VOCs by EPA Method 8260, and Pesticides by EPA Method 8081A.
- 2. Surface water and sediment samples shall be obtained during one monitoring round from each of the following surface water sampling locations and shall be analyzed for the parameters outlined in 310 CMR 19.132(h)(1-3), including VOCs by EPA Method 8260 (with lower detection limits for surface water), and total RCRA 8 metals:
  - SW-1: The orange-stained water discharging from near the surface water collection system south of Gull Pond;
  - SW-2: The eastern shore of Gull Pond;
  - SW-3: Pomeroy Pond, adjacent to the landfill;
  - SW-4: Hop Brook (upstream), as a background location;
  - SW-5: Hop Brook (downstream) just below the confluence of the Gull Pond;
  - SW-6: The orange-stained wetland area on the "KC Trail";
  - SW-7: A location near Owens Pond;
  - SW-8: The wetland west of the former Brickyard Wellfield; and
  - SW-9: The stream discharging into Gull Pond.
- 3. New landfill gas (LFG) monitoring wells (or permanent monitoring points) shall be installed at the following locations: two wells along the northern perimeter of the landfill (PGW-1 & PGW-2); one well at the northeast corner of the landfill (PGW-3); one well along the eastern perimeter of the landfill (PGW-4); one well along the southern perimeter of the landfill (PGW-5); one well along the western perimeter of the landfill (PGW-5); and one well at the northwest corner of the landfill (PGW-7). The wells shall be constructed as outlined on page 4-15 of the LAC manual.

The Department reserves the right to require additional investigatory or remedial work, including alternative remedial measures, if continued monitoring results indicate such a need.

The Department and its agents and employees shall have the right to enter upon the site at all reasonable times and without notice, to inspect the landfill and any equipment, structure or land located thereon, take samples, recover materials or discharges, have access to and photocopy records, to perform tests and to otherwise monitor compliance with this Permit and

all environmental laws and regulations. This right of entry and inspection shall be in addition to the Department's access authorities and rights under applicable federal and states laws and regulations, as well as any permits or other agreements between the Permittee and the Department.

Pursuant to 310 CMR 19.037(5), any person aggrieved by the issuance or denial of this permit decision, except as provided for under 310 CMR 19.037(4)(b), may file an appeal for judicial review of said decision in accordance with the provisions of M.G.L. c. 111, s. 150A and c. 30A not later than thirty [30] days following the receipt of the final permit. The standing of a person to file an appeal and the procedures for filing such appeal shall be governed by the provisions of M.G.L. c. 30 A. Unless the person requesting an appeal requests and is granted a stay of the terms and conditions of the permit by a court of competent jurisdiction, the permit decision shall remain effective or become effective at the conclusion of the 30 day period.

Any aggrieved person intending to appeal the decision to the superior court shall provide notice to the Department of said intention to commence such action. Said Notice of Intention shall include the Department File Number (05-008-001) and shall identify with particularity the issues and reason(s) why it is believed the approval decision was not proper. Such notice shall be provided to the Office of General Counsel of the Department and the Regional Director for the regional office which made the decision. The appropriate addresses to which to send such notices are:

General Counsel
Department of Environmental Protection
One Winter Street-Third floor
Boston, 02108

Regional Director
Department of Environmental Protection
436 Dwight Street - Fifth Floor
Springfield, MA 01103

No allegation shall be made in any judicial appeal of this decision unless the matter complained of was raised at the appropriate point in the administrative review procedures established in those regulations, provided that matter may be raised upon a showing that it is material and that it was not reasonably possible with due diligence to have been raised during such procedures or that matter sought to be raised is of critical importance to the public health or environmental impact of the permitted activity.

This approval pertains only to the Solid Waste Management aspects of the proposal and does not negate the responsibilities of the owners or operators to comply with any other local, state or federal laws and regulations now or in the future.

Amherst - Old Landfill CSA SOW -Permit Approval Modification

If you should have any questions or comments regarding this correspondence please contact Larry Hanson of this office, at #413-755-2287.

Sincerely,

Daniel Hall Section Chief

Solid Waste Management

cc: Amherst Health Dept. - Epi Bodhi, Director - T&B, Inc. - Jeffrey Thelen

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MITT ROMNEY Governor

KERRY HEALEY Lieutenant Governor

## COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS DEPARTMENT OF ENVIRONMENTAL PROTECTION WESTERN REGIONAL OFFICE

436 Dwight Street • Springfield, Massachusetts 01103 • (413) 784·1100 • FAX (413) 784·1149

ELLEN ROY HERZFELDER Secretary

ROBERT W. GOLLEDGE, Jr. Commissioner

Town of Amherst Department of Public Works 586 South Pleasant Street Amherst, MA 01002

Attention: Guilford Mooring, Supt.

Re:

Amherst-DSWM-Landfill Old Amherst Landfill Route 9 (South Side) Initial Site Assessment

Permit Approval

05-008-001 BWPSW12

Transmittal #W052202

Dear Mr. Mooring:

On June 23, 2004, the Department of Environmental Protection (the Department) received the Initial Site Assessment (ISA) report for the Old Amherst Landfill (the "Old Landfill", hereinafter referred to in this document as "the landfill"), located south of Route 9 (Belchertown Road) in Amherst. The ISA Report was prepared by Tighe & Bond, Inc. (T&B), on behalf of the Town of Amherst (the Town). On October 26, 2004 the Department received additional ISA information from the Town, as requested.

### Landfill History

The landfill was operated from the 1930s until its closure in 1986, when a 6 to 8 inch thick clay cap was installed over the entire landfill in accordance with engineering plans approved by the Department. The total capped area of the landfill occupies an area of at least 21 acres, although the exact acreage of the cap was not provided in the report. A junkyard, Amherst Recycling, had occupied approximately 4 acres adjacent to the southwestern portion of the landfill; this property was acquired by the town and included in the landfill capped area. The most recent municipal solid waste (MSW) fill area of the landfill is Phase I, the mounded area in the northwestern corner. The ISA contained

the results of a literature search of Town records for the landfill, including, Department of Public Works (DPW), Board of Health (BOH), and Water Department records. The ISA also contained an historical summary of the landfill operation and closure, based on records and on interviews with several current and former Town employees knowledgeable about the landfill.

#### Summary of Initial Site Assessment

Environmental assessment and monitoring activities at the landfill have to date consisted of the following:

- A total of approximately thirty groundwater monitoring wells have historically been installed surrounding the landfill since 1971 to monitor groundwater quality at various times and for various parameters, most of these wells have been destroyed and are no longer available for monitoring;
- The existing groundwater monitoring wells in the vicinity of the landfill apparently include the following: 5-89, 6-89, 3-80, 1-83, 2-83, 3-83,4-83, 2-85, 3-85, 1-94, 1-03, & 2-03. In addition, there are a number of upgradient monitoring wells which surround the "New Amherst Landfill" north of Rt. 9.
- Groundwater monitoring has indicated that groundwater flow is generally from east to west in the landfill vicinity;
- Most of the existing monitoring well network was installed to provide monitoring of groundwater conditions for the Town's Lawrence Swamp public water supply wells, located over one mile south of the landfill. Monitoring of wells 3-80, 2-85, 3-85, 3-83, 1-89, 2-89, 5-89, 6-89, 1-03, and 2-03 has been performed on an annual basis as required by the Department's Division of Water Supply (DWS).
- The recent monitoring performed for the DWS showed non-detectable (ND) levels of volatile organic compounds (VOCs) in the most southern monitoring wells 3-83, 2-85, 1-89, 2-89, and 3-89 (towards the Lawrence Swamp public water supply wells). Trace to low levels of several VOCs were found in some monitoring wells closer to the landfill (to the north), as follows: well 3-85 0.5 micrograms/liter (ug/l, or parts-perbillion) chloroform and 2.2 ug/l toluene; well 3-80 4.6 ug/l of cis-1,2 dichloroethylene (cis-1,2 DCE), 0.6 ug/l of 1,2,4-trimethylbenzene, 0.9 ug/l vinyl chloride, and 0.5 ug/l xylenes; and well 6-89 2.2 ug/l toluene. All of these levels are below the Massachusetts Primary Drinking Water Standards & Guidelines (MCLs);
- Previous groundwater monitoring in 1985 had indicated the presence of a contaminant plume migrating from the landfill generally to the west. Former well OW-B (now destroyed), located approximately 1,000 feet west of the landfill (apparently in the center of the contaminant plume) had contained elevated levels of metals and indicator parameters (including lead at 130 ug/l, and nickel at 100 ug/l), and elevated levels of some VOCs, including toluene up to 460 ug/l;

- The Town's former Brickyard Wellfield, located approximately 2,000 feet west of the landfill, was closed in 1980 due to low levels (approximately 10 ug/l) of VOCs, attributed to the landfill;
- The Lawrence Swamp public supply wells have apparently shown no impact from the landfill, although no data was provided in the report;
- Surface water sampling was apparently performed in 1988 at locations west and northwest of the landfill, including Gull Pond and the "Skating Pond", although surface water data was not included in the report;
- In the 1980s, the Town installed a system to collect ironstained surface water from an inlet to Gull Pond. The inlet discharge is directed to a settling tank, then to the Town's sanitary sewer system;
- As required by the Department, the Town completed private well surveys in 2003 and 2004 for the areas within a half-mile of the landfill by comparison of Assessor records to Water Department records. The surveys revealed that all residences and other buildings within a half-mile of the landfill are serviced by the Amherst public water system, except for the following: a private well at 126 Belchertown Road, located upgradient (east) of the landfill, which has been sampled historically as part of the Town's sampling program for the New Landfill (no landfill impact seen); and a private well located at 163 Wildfower Ave, used only for a non-contact geothermal heating system at that residence (not used as a drinking water source);
- Landfill gas (LFG) monitoring points were installed along the western perimeter of the landfill in the early 1990s, and LFG monitoring was performed at these points from 1995 through 1998. In 2003, LFG monitoring was performed at these LFG points, and also at LFG monitoring probes at other locations between the western perimeter of the landfill and nearby residences, from #163 Wildfower Lane north through #51 Tanglewood Road. LFG was non-detectable (ND) at almost all monitoring points and probes, with only the four most northern points containing detectable LFG. LFG points SG-21 and SG-22 at the northwestern corner of the landfill contained 36% Lower Explosive Level (%LEL) and 45% LEL respectively, at the property line, above the 25% LEL standard. LFG points located 50 feet and 75 feet west of the property line at these locations, between the landfill and the Hall commercial building located there, were ND for LFG.

### DEPARTMENT DETERMINATIONS

Personnel of the Department have reviewed the ISA report and permit application for the landfill in accordance with MGL c. 111 s. 150A, MGL c. 30A, 310 CMR 19.000, the Department's publication

Landfill Technical Guidance Manual (the LAC), revised in May, 1997, and the Department's publication Standard References for Monitoring Wells (WSC-310-91). The Department has determined that the ISA report is acceptable in accordance with MGL c. 111, s. 150A and MGL c. 30A. The Department has determined that a Comprehensive Site Assessment (CSA) investigation and report shall be performed in accordance with the conditions outlined below.

- 1. An Interim CSA Report shall be submitted to the Department within 6 months of the date of this permit approval. The Interim CSA Report shall contain all of the information outlined below at Conditions 2 through 15 of this permit approval, including a Scope-of-Work for completion of the Final CSA Report (Final CSA SOW).
- 2. All existing site groundwater monitoring wells shall be identified and inspected to determine if they are valid sampling points. All existing site groundwater monitoring wells which are located and determined to be valid sampling points (including at a minimum, wells 3-80, 3-83, 2-85, 3-85, 1-89, 2-89, 3-89, 5-89, 6-89, 1-03, and 2-03) shall be sampled during one monitoring round and analyzed for the parameters outlined at 310 CMR 19.132(h)(1-3), including RCRA 8 metals (as total metals), VOCs by EPA Method 8260, and Pesticides by EPA Method 8081A.
- 3. The existing groundwater monitoring wells shall be sampled in accordance with the procedures outlined in the Department's publication Standard References for Monitoring Wells (WSC-310-91). Sampling can alternatively be performed in accordance with the USEPA publication Low Stress (low flow)

  Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, dated July 30,
- 4. All existing site groundwater monitoring wells shall be resurveyed to establish valid elevation datum. Groundwater elevations shall be measured at all existing site monitoring wells during the monitoring round, and a groundwater contour map shall be prepared from this data.
- 5. Surface water and sediment samples shall be obtained during one monitoring round from each of the following surface water sampling locations and shall be analyzed for the parameters outlined in 310 CMR 19.132(h)(1-3), including VOCs by EPA Method 8260 (with lower detection limits for surface water), and total RCRA 8 metals:
  - SW-1: The orange-stained water discharging from near the surface water collection system south of Gull Pond;
  - SW-2: The eastern shore of Gull Pond;
  - SW-3: Pomeroy Pond, adjacent to the landfill;
  - SW-4: Hop Brook (upstream), as a background location;

- SW-5: Hop Brook (downstream) just below the confluence of the Gull Pond;
- SW-6: The orange-stained wetland area on the "KC Trail";
- SW-7: An orange-stained wetland southeast of Owens Pond;
- SW-8: The wetland west of the former Brickyard Wellfield;
- SW-9: The stream discharging into Gull Pond; and
- SW-10. The "Skating Pond", if it still exists.
- 6. The private well at 163 Wildfower Ave, used for the non-contact geothermal heating system at that residence, shall be sampled for the parameters outlined in 310 CMR 19.132(h)(1-3), including VOCs by EPA Method 8260, and total RCRA 8 metals.
- 7. All VOC analyses by EPA Method 8260 shall be performed as outlined in 310 CMR 19.132(h)(1-3), specifically methyl ethyl ketone, methyl isobutyl ketone, and acetone shall be included, and unknown peaks having intensities greater than 5 times the background intensity shall be identified.
- 8. Quality Assurance/Quality Control Plan (QA/QC) protocols for all environmental monitoring should generally follow those outlined in the Department's LAC and Standard References manuals.
- 9. New landfill gas (LFG) monitoring wells (or permanent monitoring points) shall be installed at the following locations: two wells along the northern perimeter of the landfill; one well at the northeast corner of the landfill; two wells along the eastern perimeter of the landfill; and two wells along the southern perimeter of the landfill. The wells shall be constructed as outlined on page 4-15 of the LAC manual.
- 10. Monitoring of the new LFG wells and all existing LFG monitoring points shall be performed during one monitoring round. LFG monitoring shall be performed as outlined on p. 4-16 and 4-17 of the LAC manual for % Lower Explosive Limit (% LEL), % oxygen, and hydrogen sulfide. If LFG levels exceed 25% LEL at the property line, the Department shall be notified within 24 hours, as outlined in 310 CMR 19.132(4)(h), and the Town shall either monitor the residence(s) near the exceedance or monitor LFG monitoring wells closer to the residences for the same parameters. If LFG levels exceed 10% LEL within any building, the Department shall be notified within two hours, as outlined in 310 CMR 19.132(4)(g), and the Town shall take immediate action to protect public health and safety.

- 11. LFG monitoring shall also be performed during one monitoring round as outlined on p. 4-16 and 4-17 of the LAC manual for % Lower Explosive Limit (% LEL), % oxygen, hydrogen sulfide, and total VOCs, for ambient air at breathing zone height over the entire landfill cap area, at a spacing of 5 measurements per acre.
- 12. For the entire landfill cap area outside the Phase I MSW "Mound" area, shallow surface soil borings shall be performed through the vegetative support layer and impermeable soil layers of the cap, at a spacing of 1 boring per acre. The borings shall document the type and thickness of the vegetative support layer and impermeable soil layer. Prior to extending the soil boring into the impermeable layer, LFG monitoring shall be performed in each boring for the parameters outlined at Condition 11.

Five representative soil samples of the vegetative support layer shall be analyzed for VOCs by EPA Method 8260, and total RCRA 8 metals. Five representative soil samples of the impermeable soil layer shall be analyzed for laboratory permeability by the triaxial cell method. All soil borings shall be closed by placing bentonite from the base of the borings to within 6 inches of the surface, with soil and sod replaced at the top of the boring above the bentonite. One surficial soil sample shall also be obtained from each of the following areas and analyzed for VOCs by EPA Method 8260 and total RCRA 8 metals: the former sand borrow pit area, just south of the landfill; and the area between the landfill perimeter and Pomeroy Pond.

- 13. An Interim CSA Report shall be submitted to the Department within 6 months of the date of this permit approval. The Interim CSA Report shall contain the following information:
  - (A) Updated basemaps, depicting the locations of all: existing groundwater monitoring wells located and sampled; surface water and sediment sampling locations; street names; private wells, public wells; existing and new LFG monitoring points/wells; ambient-air LFG monitoring locations; landfill cap soil borings; surficial soil samples; and the specific extent of the landfill cap.
  - (B) Construction details for new LFG monitoring points/wells;
  - (C) Tabular summaries of all analytical and monitoring data performed as part of the CSA, including LFG monitoring and cap thickness data;
  - (D) Laboratory data sheets for the CSA monitoring round;
  - (E) Groundwater contour maps for the CSA monitoring round;
  - (F) A Scope-of-Work for completion of the Final CSA (as outlined at Condition 12); and
  - (G) A completed BWPSW23 application.

- 14. The Final CSA SOW shall be based on the results of the Interim CSA Report, and shall contain provisions for the following:
  - (A) The installation and sampling of additional groundwater monitoring wells, sufficient to define the extent and nature of groundwater contamination from the landfill;
  - (B) A second round of surface water samples;
  - (C) A second round of LFG monitoring for LFG monitoring points/wells;
  - (D) The submittal of all of the information as outlined in the LAC, p. C-26 through C-29; and
  - (E) A proposal for post-closure maintenance and monitoring requirements for the landfill for the 30-year post-closure period.
- 15. If the Town wishes to utilize any portions of the landfill, or any land directly abutting the landfill, for any purposes other than as a closed and capped landfill (i.e. soccer fields, or other post-closure uses), then the Final CSA SOW shall contain a written SOW for completion of a Quantitative Risk Assessment, in accordance with the LAC, Chapter 8, sections IV & V for the specific post-closure use proposed, as well as a written SOW for compound-specific air monitoring for any use proposed on the landfill.
- 16. Appropriate Health & Safety (H&S) measures shall be utilized for all assessment work at the SCFA.

Pursuant to 310 CMR 19.037(5), any person aggrieved by the issuance of this approval, except as provided for under 310 CMR 19.037(4)(b), may file an appeal for judicial review of said decision in accordance with the provisions of M.G.L. c. 111, s. 150A and C. 30A not later than thirty [30] days following notice of this decision. The standing of a person to file an appeal and the procedures for filing such appeal shall be governed by the provisions of M.G.L. c. 30 A. Unless the person requesting an appeal requests and is granted a stay of the terms and conditions of the permit by a court of competent jurisdiction, the permit decision shall remain effective or become effective at the conclusion of the 30 day period.

Any aggrieved person intending to appeal the decision to the superior court shall provide notice to the Department of said intention to commence such action. Said Notice of Intention shall include the Department File Number (05-008-002) and shall identify with particularity the issues and reason(s) why it is believed the approval decision was not proper. Such notice shall be provided to the Office of General Counsel of the Department and the Regional Director for the regional office which made the decision.

The appropriate addresses to which to send such notices are:

General Counsel
Department of Environmental Protection
One Winter Street-Third floor
Boston, MA 02108

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Regional Director

Department of Environmental Protection
436 Dwight Street - 5th Floor
Springfield, MA 01103

No allegation shall be made in any judicial appeal of this decision unless the matter complained of was raised at the appropriate point in the administrative review procedures established in those regulations, provided that matter may be raised upon a showing that it is material and that it was not reasonably possible with due diligence to have been raised during such procedures or that matter sought to be raised is of critical importance to the public health or environmental impact of the permitted activity.

The Department reserves the right to require additional investigatory or remedial work, including alternative remedial measures, if continued monitoring results indicate such a need.

If you should have any questions or comments regarding this correspondence please contact Larry Hanson of this office, at #413-755-2287.

Sincerely,

Daniel Hall Section Chief Solid Waste Management

cc: Amherst Town Manager - Barry DelCastilho
Amherst Health Dept. - Epi Bodhi, Director
Amherst Water Dept. - Robert Pariseau
Amherst Leisure Services - Director
T&B, Inc. - Jeffrey Thelen
DEP/WERO/DWS - Katherine Skiba

|             | Tighe & Bond<br>Amherst, MA |              |                 | I .                              | ABOARD<br>ILLING, IN | C.             | Test Bori<br>Monitor V | _           | PGW-1  |
|-------------|-----------------------------|--------------|-----------------|----------------------------------|----------------------|----------------|------------------------|-------------|--------|
| Project:    | Old Amherst                 | Landfill     |                 | 1                                | 26 SPFLD, M          |                |                        |             |        |
| Contract    | or: Seab                    | oard Drillir | ig, Inc.        |                                  | NG/SOIL I            |                | Sheet No               |             | 1 of 2 |
|             | Casing                      | Sampler      | Core Barrel     |                                  | eight-lb./fall-      | 30")           | Start:                 | 9/22/2005   |        |
| Туре        | HSA                         | SS           | N/A             |                                  | 300/24               |                | Finish: 9/22/2005      |             |        |
| O.D. Inch   | 8-1/2"                      |              |                 | Rig Type:                        | B-53                 |                | Driller:               | Frank Harr  | ington |
| .D. lnch    | 4-1/4"                      |              |                 |                                  | <del></del>          |                |                        |             |        |
| Depth (ft.) | Blows                       | Sample       | Recovery        | F                                | IELD CLASS           | IFICATIONS     | AND REMARK             | (S          | PID    |
| Range       | Per 6"                      | No.          | ļ               |                                  |                      |                |                        | 10.05       | 0.0    |
| 0-2'        | 8-17-15-20                  | S-1          | 10 <sup>n</sup> | Brown Very Fi                    | ne SAND, Tra         | ce Silt, Trace | e Organics, Grav       | /el 0-6".   | 0.0    |
| 5-7'        | 11-14-17-15                 | S-2          | 6"              | Light Brown Fi                   | ne to Medium         | SAND, Trac     | e Silt and Small       | Gravel.     | 0.0    |
| 10-12'      | 9-15-20-29                  | S-3          | 10"             | Light Brown Fi                   | ne to Medium         | SAND, Trac     | e Silt and Smail       | Gravel.     | 0.0    |
| 15-17'      | 9-15-14-14                  | S-4          | 16"             | Light Brown F<br>Gravel.         | ine to Medium        | SAND, Trac     | e Silt and Some        | Small       | 0.0    |
| 20-21.5'    | 9-12-13-17                  | S-5          | 17"             | Gravel.                          |                      |                | Silt, Trace Smal       | l           | 0.0    |
| 22-29'      | 9-10-12-15                  | S-6          | 10"             | Light Brown F                    | ine-Medium S         | AND, Trace     | Silt.                  |             | 0.0    |
| 30-32'      | 10-12-17-21                 | S-7          | 15*             | Light Brown F                    | ine-Medium S         | AND, Trace     | Silt.                  | · .         | 0.0    |
|             | <del> </del>                | PENETRATIO   |                 | E - 140 lb. Wt. Five Consistence | alling 30" on 2      | 2" O.D. samp   | pler                   | PROPORTIO   | NS     |
| Dens        |                             | lungu leses  | # of Hamme      |                                  | very soft /          | soft           | trace                  | 0 to 10%    |        |
| # of Hamm   |                             | very loose   | 1               | 3-4                              | med-stiff /          | stiff          | little                 | 10 to 20%   |        |
| 0-4         |                             | loose        | 0-2             |                                  | l                    | i              | some                   | 20 to 35%   |        |
| 5-9         |                             | med/dense    | 5-8             | 9-15                             | very stiff /         | hard           | i                      | 30 to 50%   |        |
| 10-7        |                             | dense        | 16-30           | 31+                              |                      |                | and                    | 30 10 30 70 |        |
| 30-49       | 50+                         | very dense   |                 |                                  | <u> </u>             | 1              |                        |             |        |

|             | <del> </del> |                 |              |   |                 |                                       | T4 D              | la and       |          |
|-------------|--------------|-----------------|--------------|---|-----------------|---------------------------------------|-------------------|--------------|----------|
| Client:     | Tighe & Bond |                 |              | 1                                       | ABOARD          | _                                     | Test Bori         |              | DOM 4    |
|             | Amherst, MA  |                 |              | Į.                                      | ILLING, IN      |                                       | Monitor \         | Well ID:     | PGW-1    |
|             | Old Amherst  |                 |              | •                                       | 26 SPFLD, M     |                                       | <u> </u>          |              | 0 -10    |
| Contract    |              | oard Drillin    |              |   | NG/SOIL L       |                                       | Sheet No          |              | 2 of 2   |
|             |              | Sampler         | Core Barrei  | 4                                       | eight-lb./fail- | 30")                                  | Start: 9/22/2005  |              |          |
| Туре        | HSA          | SS              | N/A          | 140/30                                  |                 | · · · · · · · · · · · · · · · · · · · | Finish: 9/22/2005 |              |          |
| O,D. inch   | 8-1/2"       |                 |              | Rig Type:                               | B-53            |                                       | Driller:          | Frank Hari   | rington  |
| I.D. Inch   | 4-1/4"       |                 |              |   | , .             |                                       |                   |              |          |
| Depth (ft.) | Blows        | Sample          | Recovery     | F                                       | IELD CLASS      | IFICATIONS                            | AND REMAR         | KS           | PID      |
| Range       | Per 6*       | No.             |              |   |                 |                                       |                   |              |          |
| 40-42'      | 10-12-15-22  | S-9             | 18"          | Grey/Light Bro                          | wn Very Fine    | SAND and S                            | ilt. (Wet).       |              | 0.0      |
|             |              |                 |              |   |                 |                                       |                   |              |          |
|             |              |                 |              |   |                 |                                       |                   |              |          |
|             |              |                 |              |   |                 |                                       |                   |              |          |
|             |              |                 |              |   |                 |                                       |                   |              |          |
| 45-47'      | 10-12-13-15  | S-10            | 15"          | Brown, Very F                           | ne SAND and     | Silt (Wet).                           |                   |              | 0.0      |
|             |              |                 |              |   |                 |                                       |                   |              |          |
|             |              |                 |              | İ                                       |                 |                                       |                   |              |          |
|             |              |                 |              |   |                 |                                       |                   |              |          |
|             |              |                 |              | Well Set @ 45                           | i.0'.           |                                       |                   |              |          |
|             | ,            |                 |              |   |                 |                                       |                   |              |          |
|             |              | ļ               |              | *************************************** |                 |                                       |                   |              |          |
|             |              |                 |              |   |                 |                                       |                   |              |          |
|             |              | ł               |              |   |                 |                                       |                   |              |          |
|             |              |                 |              | 1                                       |                 |                                       |                   |              |          |
|             |              |                 |              | 0.010 Slot Scr                          | oon 5-45'       |                                       |                   |              |          |
|             |              |                 |              | No. 1 Well SA                           |                 |                                       |                   | •            |          |
|             |              |                 |              |   |                 |                                       |                   |              |          |
|             |              |                 | <u> </u>     | Bentonite Sea                           |                 |                                       |                   |              |          |
|             | 1            | 1               | <u> </u>     | Concrete 0-1'.                          |                 |                                       | •                 |              | 1        |
|             |              |                 |              | Completed wit                           | п Ѕtапаріре Р   | rotective Cas                         | sing.             |              | <u> </u> |
|             |              |                 |              | 1                                       |                 |                                       |                   |              |          |
|             |              |                 |              | 1                                       |                 |                                       |                   | <del>.</del> |          |
|             |              |                 |              |   |                 |                                       |                   |              |          |
|             |              |                 |              |   |                 |                                       |                   |              |          |
|             |              |                 |              |   |                 |                                       | ,                 |              |          |
| . —         |              |                 |              | 1                                       | •               |                                       |                   |              |          |
|             |              |                 |              | 1                                       |                 |                                       |                   |              | 1        |
|             |              | 1               |              |   |                 |                                       |                   |              |          |
|             |              |                 | 1            |   |                 |                                       |                   |              |          |
|             |              |                 |              |   |                 |                                       | ·                 |              |          |
|             | 1            | 1               | 1            |   |                 |                                       |                   |              |          |
|             |              |                 |              |   |                 |                                       |                   |              |          |
|             |              |                 |              |   |                 |                                       |                   |              |          |
|             |              |                 |              |   |                 |                                       |                   |              |          |
|             | CAMBLE       | L<br>DENETRATIO | N RESISTANCE | 1. 140 lb W/r F                         | alling 30" on 3 | " () () samn                          | ler               |              |          |
| Da          |              | LINETRATIO      |              | ve Consistence                          |                 |                                       |                   | PROPORTIO    | ONS      |
| Dens        |              | lungula - c c   | # of Hammer  | <del></del>                             | very soft /     | soft                                  | trace             | 0 to 10%     |          |
| # of Hamm   |              | very loose      |              |   | 1               | stiff                                 | little            | 10 to 20%    |          |
| 0           |              | loose           | 0-2          | 3-4                                     | med-stiff /     | ļ                                     | 1                 | 20 to 35%    |          |
| 5-          |              | med/dense       | 5-8          | 9-15                                    | very stiff /    | hard                                  | some              | 1 "          | ,        |
| 10-         |              | dense           | 16-30        | 31+                                     |                 |                                       | and               | 30 to 50%    |          |
| 30-49       | 50+          | very dense      |              |   | <u> </u>        | .l                                    |                   |              |          |

| Client:            | Tighe & Bond | <del></del>  |              | SEABOARD                     | )                 | Test Bori         | ng/        |        |
|--------------------|--------------|--|--------------|------------------------------|-------------------|-------------------|------------|--------|
| Location           | Amherst, MA  | ı  |              | DRILLING, I                  | NC.               | Monitor \         | Well ID:   | PGW-2  |
| Project:           | Old Amherst  | Landfill   |              | P.O. BOX 3026 SPFLD,         | MA 01101          |                   |            |        |
| Contract           | or: Seab     | oard Drillin   | g, Inc.      | DRILLING/SOIL                | LOG               | Sheet No          |            | 1 of 2 |
|                    | Casing       | Sampler  | Core Barrel  | Hammer (Weight-lb./fal       | l-30")            | Start: 9/22/2005  |            |        |
| Type               | HSA          | SS   | N/A          | 140/30 300/24                |                   | Finish: 9/22/2005 |            |        |
| O.D. Inch          | 8-1/2"       |  |              | Rig Type: B-53               |                   | Driller:          | Frank Harr | ington |
| i.D. Inch          | 4-1/4"       |  |              |                              |                   |                   |            |        |
| Depth (ft.)        | Blows        | Sample   | Recovery     | FIELD CLAS                   | SIFICATIONS A     | AND REMAR         | KS         | PJD    |
| Range              | Per 6"       | No.  |              |                              |                   |                   |            |        |
| 0-2'               | 8-10-10-13   | S-1  | 10"          | Brown Very Fine SAND, Ti     | ace Silt, Trace ( | Organics.         |            | 0.0    |
|                    |              | vale verifie skiller kan de service es |              |                              |                   |                   |            |        |
| 5-7'               | 3-5-5-7      | S-2  | 10"          | Light Brown Very Fine SAN    | ID, Trace Silt.   |                   |            | 0.0    |
|                    |              |  |              |                              |                   |                   | 1          |        |
|                    |              |  |              |                              |                   |                   |            |        |
|                    |              |  |              |                              |                   |                   |            |        |
| 10-12'             | 8-14-10-10   | S-3  | 6"           | Light Brown Very Fine SAN    | ID, Trace Silt.   |                   |            | 0.0    |
|                    |              |  |              |                              |                   | •                 |            |        |
|                    |              |  |              |                              |                   |                   |            |        |
|                    |              |  |              |                              |                   |                   |            | •      |
|                    |              |  | -            |                              |                   |                   |            |        |
| 15-17'             | 7-14-10-10   | S-4  | 18"          | Light Brown Very Fine SAN    | ID, Trace Silt.   |                   |            | 0.0    |
|                    |              |  | ***          |                              |                   |                   |            |        |
|                    |              |  |              |                              |                   |                   |            |        |
|                    |              |  | -            |                              |                   |                   |            |        |
|                    |              |  | ***          |                              |                   |                   |            |        |
| 20-22'             | 8-11-12-12   | S-5  | 16"          | Light Brown Fine-Medium      | SAND, Trace Si    | lt.               |            | 0.0    |
|                    |              |  |              |                              |                   |                   |            |        |
|                    |              |  | ******       |                              |                   |                   |            |        |
|                    |              |  |              |                              |                   |                   |            |        |
|                    |              |  |              |                              |                   |                   |            |        |
| 25-27'             | 9-9-11-13    | S-6  | 12"          | Light Brown Fine-Medium      | SAND, Trace Sil   | lt.               |            | 0.0    |
|                    |              |  | -            |                              | , 011             |                   |            | - · ·  |
|                    |              |  |              |                              |                   |                   |            |        |
| -                  |              |  |              |                              |                   |                   | -          |        |
|                    |              |  |              |                              |                   |                   |            |        |
| 30-32'             | 13-15-16-18  | S-7  | 19"          | Light Brown Fine SAND, T     | race Silt         |                   |            | 0.0    |
| 30-52              | 10-10-10-10  | ] 3.7  | 19 '         | LEGIK DIVARIT RIG OMNU, 1    | I GOO OHE.        |                   |            |        |
|                    |              |  |              |                              |                   |                   |            |        |
|                    |              |  | -            |                              |                   |                   |            |        |
|                    | SAMOIET      | L  | I DESISTANCE | - 140 lb. Wt. Falling 30" on | 2ª ∩ D' camplei   | -T                |            |        |
| Densi              |              | FULLIVATIO!  | ····         | e Consistence                | 2 O.D. Sampler    | 1                 | PROPORTIO  | NS     |
| # of Hamme         |              | very loose   | # of Hammer  |                              | soft              | trace             | 0 to 10%   |        |
| # 01 rtamme<br>0-4 |              | 1 -  | # of rtammer | 3-4 med-stiff /              | stiff             | little            | 10 to 20%  |        |
| 5-9                |              | loose<br>mod/dones   | 1            | 1                            |                   | some              | 20 to 35%  |        |
|                    |              | med/dense  | 5-8          |                              | hard              |                   | 30 to 50%  |        |
| 10-2               |              | dense  | 16-30        | 31+                          |                   | and               | 30 (0 50%  |        |
| 30-49              | 50+          | very dense   | <u> </u>     |                              | <u> </u>          | 1                 |            |        |

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| Client:     | Tighe & Bond  |              |   |                    | BOARD<br>LING, IN        | c             | Test Bori<br>Monitor V |             | PGW-2  |
|-------------|---------------|--------------|---|--------------------|--------------------------|---------------|------------------------|-------------|--------|
|             | Amherst, MA   |              |   | P.O. BOX 302       | -                        |               | INIONITO 1             | Tell ID.    | 10112  |
|             | Old Amherst   |              | a Ino                                   |                    | ig spred, m<br>IG/SOIL I |               | Sheet No               |             | 2 of 2 |
| Contract    |               | oard Drillin | Core Barrel                             | Hammer (We         |                          |               | Start:                 | 9/22/2005   |        |
| <b></b>     | Casing        | Sampler      |   | 140/30             | _                        | 30 )          | Finish:                | 9/22/2005   |        |
| Туре        | HSA<br>8-1/2" | SS           | N/A                                     | Rig Type: E        |                          | <u> </u>      | Driller:               | Frank Harr  | inatan |
| O.D. Inch   | 4-1/4"        | <u> </u>     |   | Trug Type, E       | 3-00                     | 1             | Dimer.                 | 1 IGHK HGH  |        |
| I.D. inch   | <del></del>   | 0            | Deservo                                 | El                 | ELD CLASS                | IEICATIONS    | AND REMARI             | <u> </u>    | PID    |
| Depth (ft.) | Blows         | Sample       | Recovery                                | F1                 | ELD CLASS                | IFICATIONS    | MAD KEMAKI             |             | , 10   |
| Range       | Per 6"        | No.          | 4.0%                                    | Light Brown/Yel    | lou Von Sin              | SAMD and      | Trace Sill             | ·           |        |
| 35-37'      | 10-12-15-22   | S-8          | 10*                                     | Light Brown/Tel    | low very rim             | S SWIAD BIID  | Hace Sin.              |             |        |
|             |               |              |   |                    | •                        |               |                        |             |        |
| 40-42'      | 8-9-9-11      | S-9          | 19"                                     | Light Brown, Fir   | ne SAND and              | Trace Silt (\ | Wet).                  |             | 0.0    |
|             |               |              |   |                    |                          |               |                        |             |        |
|             |               |              | *************************************** |                    |                          |               |                        |             |        |
| 45-47'      | 8-8-9-9       | S-10         | 11"                                     | Brown, Very Fir    | e SAND and               | Silt.         |                        |             | 0.0    |
|             |               |              |   |                    |                          | ٠             |                        | 1           |        |
|             |               |              |   | Well Set @ 45.     | 0'.                      |               |                        |             |        |
|             |               |              |   | 1                  |                          |               |                        |             |        |
| ·           |               |              |   |                    |                          |               |                        |             |        |
|             |               |              |   | 0.010 Slot Scre    | en 5-45'                 |               |                        |             |        |
|             |               |              |   | No. 1 Well SAN     | ID 3-45'.                |               |                        |             |        |
|             |               |              |   | Bentonite Seal     | 1-3'.                    |               |                        |             |        |
|             |               |              |   | Concrete 0-1'.     |                          |               |                        |             |        |
|             |               |              |   | Completed with     | Standpipe F              | rotective Cas | sing.                  |             |        |
|             | -             |              |   |                    |                          |               |                        |             |        |
|             |               |              |   |                    |                          |               |                        | ÷           |        |
|             |               |              |   | 1                  |                          |               |                        |             |        |
|             |               |              |   |                    |                          |               |                        |             |        |
|             | ļ             |              |   | 1                  |                          |               |                        | <del></del> |        |
|             |               |              |   | w.                 |                          |               |                        |             |        |
|             |               | +            |   |                    |                          |               |                        |             |        |
|             |               |              | 1                                       | 1                  |                          |               |                        |             |        |
|             |               | <u> </u>     | 1                                       |                    | W 201 5                  | W O D         | loe                    |             | L      |
|             |               | PENETRATIO   |   | E - 140 lb. Wt. Fa | lling 30" on 2           | : O.D. samp   | HEF                    | PROPORTIC   | NS     |
| Dens        |               | <del>1</del> |   | ive Consistence    |                          | 100#          | iracc                  | 0 to 10%    |        |
| # of Hamn   | <del></del>   | very loose   | # of Hammer                             | 1                  | very soft /              | soft          | trace                  | 10 to 20%   |        |
| 0           |               | loose        | 0-2                                     | i                  | med-stiff /              | stiff         | little                 | 1           |        |
| 5-          |               | med/dense    | 5-8                                     |                    | very stiff /             | hard          | some                   | 20 to 35%   |        |
| 10-         |               | dense        | 16-30                                   | 31+                |                          |               | and                    | 30 to 50%   |        |
| 30-49       | 50+           | very dense   |   |                    |                          | <u> </u>      |                        | <u>l</u>    |        |

| Client:     | Tighe & Bond | }            |             | SE.              | ABOARD           |                   | Test Bori     |            |              |
|-------------|--------------|--------------|-------------|------------------|------------------|-------------------|---------------|------------|--------------|
| 1           | Amherst, MA  |              |             | DRI              | LLING, IN        | C.                | Monitor V     | Vell ID:   | PGW-3        |
| Project:    | Old Amherst  | Landfill     |             | P.O. BOX 303     |                  |                   |               |            |              |
| Contract    | or: Seabo    | oard Drillin | g, Inc.     | DRILLII          | NG/SOIL L        | .OG               | Sheet No      |            | 1 of 2       |
|             | Casing       | Sampler      | Core Barrel | Hammer (We       | eight-lb./fall-3 | 30")              | Start:        | 9/22/2005  | <del> </del> |
| Туре        | HSA          | SS           | N/A         | 140/30           | 300/24           |                   | Finish:       | 9/22/2005  |              |
| O.D. Inch   | 8-1/2"       |              |             | Rig Type:        | B-53             |                   | Driller:      | Frank Harr | ington       |
| I.D. Inch   | 4-1/4"       |              |             |                  |                  |                   |               |            |              |
| Depth (ft.) | Blows        | Sample       | Recovery    | F                | IELD CLASS       | IFICATIONS A      | ND REMARK     | (S         | PID          |
| Range       | Per 6"       | No.          |             | ļ                |                  | <del> </del>      |               |            |              |
| 0-2'        | 13-17-15-15  | S-1          | 6"          | Brown Very Fin   |                  | ce Silt, Trace S  | Small Gravel, |            | 0.0          |
|             |              |              |             | Trace Organics   | S.               |                   |               |            |              |
|             |              |              |             |                  |                  |                   |               |            |              |
|             |              |              |             |                  |                  |                   |               |            |              |
|             |              |              |             |                  |                  |                   |               |            |              |
| 5-7'        | 12-18-8-9    | S-2          | 14"         | Light Brown Ve   | ry Fine SAND     | ), Trace Silt an  | d Trace Small | Cobbles.   | 0.0          |
|             |              |              | ·           |                  |                  |                   |               |            |              |
|             |              |              |             |                  |                  |                   |               |            |              |
|             |              |              |             |                  |                  |                   |               |            |              |
|             |              |              |             |                  |                  |                   | <u></u>       |            |              |
| 10-12'      | 5-5-7-8      | S-3          | 8"          | Light Brown Ve   | ery Fine SANC    | ), Trace Silt.    |               |            | 0.0          |
|             |              |              |             |                  |                  |                   |               | Ì          |              |
|             |              |              | ·           |                  |                  |                   |               |            |              |
|             |              |              |             | ļ                |                  |                   |               |            |              |
|             |              |              |             |                  |                  |                   |               |            |              |
| 15-17'      | 8-12-9-13    | S-4          | 18"         | Light Brown Ve   | ry Fine SAND     | ), Trace Silt.    |               | j          | 0.0          |
|             |              |              |             |                  |                  |                   |               |            |              |
|             |              |              | ]           | İ                |                  |                   |               |            |              |
|             |              |              | İ           | 1                |                  |                   |               |            |              |
|             |              |              |             |                  |                  |                   |               |            |              |
| 20-22'      | 10-5-5-4     | S-5          | 20"         | Light Brown Ve   | ery Fine SAND    | D, Trace Silt, D  | ry.           |            | 0.0          |
|             |              |              |             |                  |                  |                   |               |            |              |
|             |              |              |             | 1                |                  |                   |               |            |              |
|             |              |              |             |                  |                  |                   |               |            |              |
|             |              |              |             |                  |                  |                   |               |            | 0.0          |
| 25-27'      | 5-7-7-9      | S-6          | 18"         | Light Brown Ve   | ery Fine SAND    | D, Trace Silt.    |               |            | 0.0          |
|             |              |              |             | 1                |                  |                   |               |            |              |
|             |              |              |             | 1                |                  |                   |               |            |              |
|             |              |              |             |                  |                  |                   |               |            |              |
|             |              |              |             | <u> </u>         |                  |                   |               | :          | 0.0          |
| 30-32'      | 16-18-10-8   | S-7          | 10"         | Light Brown Ve   | ery Fine SAND    | D, Trace Silt. (\ | (Vet).        |            | 0.0          |
|             |              |              |             |                  |                  |                   |               |            |              |
|             |              | 1            |             | 1.               |                  |                   |               |            |              |
|             |              | L            |             | <u> </u>         |                  |                   | T             | <u></u>    |              |
| <u></u>     | <del></del>  | PENETRATIO   |             | - 140 lb. Wt. Fa | alling 30" on 2  | " O.D. sample     | <u>r </u>     | DRODORTIO  | NS           |
| Dens        | <del>.</del> |              |             | ve Consistence   |                  | <u> </u>          | <u> </u>      | PROPORTIO  | 140          |
| # of Hamm   |              | very loose   | # of Hammer |                  | very soft /      | soft              | trace         | 0 to 10%   |              |
| 0-4         | ļ            | loose        | 0-2         |                  | med-stiff /      | stiff             | little        | 10 to 20%  |              |
| 5-9         |              | med/dense    | 5-8         |                  | very stiff /     | hard              | some          | 20 to 35%  |              |
| 10-2        | 29           | dense        | 16-30       | 31+              | •                |                   | and           | 30 to 50%  |              |
| 30-49       | 50+          | very dense   | <u> </u>    |                  |                  |                   | <u> </u>      |            |              |

|             | Tighe & Bon<br>Amherst, MA | <b>A</b>                   |                  | DI  | EABOARD<br>RILLING, II     | NC.            | Test Bori<br>Monitor V                  |           | PGW-3    |
|-------------|----------------------------|----------------------------|------------------|---|----------------------------|----------------|---|-----------|----------|
| Project:    | Old Amhersi                | t Landfill<br>oard Drillii | na Inc           |   | 3026 SPFLD, I<br>LING/SOIL |                | Sheet No                                |           | 2 of 2   |
|             | Casing                     | Sampler                    | Core Barrel      |   | Weight-lb./fall            |                | Start:                                  | 9/22/2005 | LOIL     |
| Туре        | HSA                        |                            |                  |   | _                          | I-30 j         | Finish:                                 |           |          |
|             |                            | SS                         | N/A              |   | 300/24                     |                | • |           |          |
| O.D. Inch   | 8-1/2"                     | ļ <u>-</u>                 |                  | Rig Type                                    | : B-53                     |                | Driller:                                | Frank Har | rington  |
| I.D. Inch   | 4-1/4"                     |                            | <b></b>          |   |                            | _ 1            |   |           | ,        |
| Depth (ft.) | 1                          | Sample                     | Recovery         | 1   | FIELD CLAS                 | SIFICATIONS    | AND REMARK                              | (S        | PID      |
| Range       | Per 6"                     | No.                        | <u> </u>         |   |                            |                |   |           |          |
| 35-37'      | 8-11-13-10                 | S-8                        | 24"              | Light Brown                                 | Very Fine SAN              | D, Trace Silt. | (Wet).                                  |           | 0.0      |
|             |                            |                            | . :              |   |                            | ·              |   |           |          |
|             |                            |                            |                  | Well set @ 3                                | 5.0'.                      |                |   |           |          |
|             |                            |                            |                  | 0.010 Slot Sc                               | reen 5-35'                 |                |   |           |          |
|             |                            |                            |                  | No. 1 Well S                                |                            |                |   |           |          |
|             |                            |                            | İ                | Bentonite Se                                |                            |                |   |           |          |
|             | •                          |                            | 1                | Concrete 0-1                                |                            |                |   |           |          |
|             |                            | · ·                        | ļ                | Completed with Standpipe Protective Casing. |                            |                |   |           |          |
|             |                            |                            |                  | Completed W                                 | nii Otanapipe i            | Totective Oas  | mg.                                     |           | <u> </u> |
|             |                            |                            |                  |   |                            |                |   |           |          |
|             |                            |                            |                  |   |                            |                |   |           |          |
|             |                            |                            |                  |   |                            |                |   |           |          |
|             |                            |                            |                  |   |                            |                |   |           |          |
|             |                            |                            |                  |   |                            | · ·            |   |           |          |
|             |                            | 1.                         |                  |   |                            |                |   |           |          |
|             | ·                          | 1                          |                  |   |                            |                |   |           |          |
|             |                            |                            |                  |   |                            |                |   |           |          |
|             |                            |                            |                  |   |                            |                |   |           |          |
|             |                            |                            | ·                |   | ····                       |                |   |           | •        |
|             |                            |                            |                  |   |                            |                |   |           |          |
|             |                            | i                          |                  |   |                            |                |   |           | -        |
|             |                            |                            |                  |   |                            | •              |   | į         |          |
|             |                            |                            |                  |   |                            |                | •                                       |           |          |
|             |                            | ļ                          |                  |   |                            |                |   |           |          |
|             |                            |                            | 1                |   |                            |                |   |           |          |
|             |                            |                            |                  |   |                            |                |   |           |          |
|             |                            |                            |                  | 1   |                            |                |   |           |          |
|             |                            |                            | ]                |   |                            |                |   |           |          |
|             |                            |                            |                  |   |                            |                |   |           |          |
|             |                            |                            |                  | <u> </u>                                    |                            |                |   |           |          |
|             |                            |                            | 1                | 1   |                            |                |   |           |          |
|             |                            |                            |                  |   |                            |                |   | ]         |          |
|             |                            |                            |                  |   |                            |                |   | ]         |          |
| 1           | SAMPLED                    | ENETRATION                 | I<br>NRESISTANCE | 1<br>- 140 lb 18/4 5                        | alling 30" on 3            | P O D comple   |   |           |          |
| Densit      |                            | ENETRATIO                  | <del></del>      | <del></del>                                 | anning ou on a             | . O.D. sample  | 31                                      | PROPORTIO | NS       |
|             | <del></del>                | von lees                   |                  | e Consistence                               |                            | 1-4            |   | T         | 140      |
| # of Hamme  |                            | very loose                 | # of Hammer      |   | very soft /                | soft           | trace                                   | 0 to 10%  |          |
| 0-4         |                            | loose                      | 0-2              | 3-4   | med-stiff /                | stiff          | little                                  | 10 to 20% |          |
| 5-9         |                            | med/dense                  | 5-8              | 9-15  | very stiff /               | hard           | some                                    | 20 to 35% |          |
| 10-29       | 9                          | dense                      | 16-30            | 31+   |                            |                | and                                     | 30 to 50% |          |
| 30-49       | 50+                        | very dense                 |                  |   |                            | 1              |   |           |          |

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| Client:<br>Location  | Tighe & Bon<br>Amherst, MA |               |             | 1             | EABOARD<br>RILLING, II |                  | Test Bor<br>Monitor |           | PGW-4   |
|----------------------|----------------------------|---------------|-------------|---------------|------------------------|------------------|---------------------|-----------|---------|
|                      | Old Amherst                |               |             | 1             | 3026 SPFLD,            |                  | 1                   |           | , •••   |
|                      |                            | oard Drillir  | ig, Inc.    |               | ING/SOIL               |                  | Sheet No            | ),        | 1 of 1  |
|                      | Casing                     | Sampler       | Core Barrel |               | Weight-lb./fall        |                  | Start:              | 9/23/2005 |         |
| Туре                 | HSA                        | ss            | N/A         |               | 300/24                 |                  | Finish:             | 9/23/2005 |         |
| O.D. Inch            | 8-1/2"                     | T             |             | Rig Type      |                        | <u> </u>         | Driller:            | Frank Har | rington |
| I.D. Inch            | 4-1/4"                     |               |             | 7 7           |                        |                  |                     |           |         |
| Depth (ft.)<br>Range | Blows<br>Per 6"            | Sample<br>No. | Recovery    |               | FIELD CLAS             | SIFICATIONS      | AND REMAR           | KS        | PID     |
| 0-2'                 | 8-9-11-11                  | S-1           | 12"         | Light Proves  | Sing CAND To           | ess Cill Tassa   | Carall Carral       |           | 0.0     |
| 0-2                  | 0-3-11-11                  | 3-1           | 12          | 1             |                        | ace Sill, Frace  | Small Gravel,       |           | 0.0     |
| <b>i</b> .           |                            |               |             | Trace Organi  | ics.                   |                  |                     |           |         |
|                      |                            |               |             |               |                        |                  |                     |           |         |
|                      |                            |               |             |               |                        |                  |                     |           |         |
| 5-7'                 | 17-23-24-26                | 60            | 12"         | 1:-1: 0       | 77 14 17 19            |                  |                     |           |         |
| 3-1                  | 17-23-24-20                | S-2           | 12"         | Light Brown i | -ine-Medium S          | SAND, Trace S    | ilt.                |           | 0.0     |
|                      |                            |               |             |               |                        |                  | •                   |           |         |
|                      |                            | İ             |             | i i           |                        |                  |                     |           |         |
|                      |                            | ]             |             |               |                        |                  |                     |           |         |
| 40.401               | 27.22.11.15                |               |             | <u> </u>      |                        |                  |                     |           |         |
| 10-12'               | 27-22-18-15                | S-3           | 12"         | Light Brown F | ine-Medium S           | SAND, Trace S    | ilt, Trace Small    | Gravel.   | 0.0     |
|                      |                            | 1             |             |               |                        |                  |                     |           |         |
|                      |                            |               |             | 1             |                        |                  |                     | •         | 1       |
|                      |                            |               |             |               |                        |                  |                     |           |         |
|                      |                            |               |             |               |                        |                  |                     |           |         |
| 15-17'               | 8-8-9-11                   | S-4           | 18"         | Brown Fine-N  | fedium SAND,           | , Trace Silt, Tr | ace Small Grav      | el (Wet). | 0.0     |
|                      |                            |               |             |               |                        |                  | -                   |           |         |
|                      |                            |               |             |               |                        |                  |                     |           | 1       |
|                      |                            |               |             | i             |                        |                  |                     |           | . 1     |
|                      |                            |               |             |               |                        |                  |                     |           |         |
| 20-22'               | 10-10-9-10                 | S-5           | 15"         | Brown Fine-M  | ledium SAND,           | Trace Silt (W    | et).                |           | 0.0     |
| ·                    |                            | -             |             |               |                        | •                |                     |           | 1       |
|                      |                            |               |             | 1             |                        |                  |                     |           | 1       |
|                      |                            |               |             |               |                        |                  |                     |           | l       |
|                      |                            |               |             | Well Set @ 2  | 0.01.                  |                  |                     |           |         |
|                      |                            | _             |             | 0.010 Slot Sc | ·                      |                  |                     |           |         |
|                      |                            |               |             | No. 1 Well SA |                        |                  |                     | ļ         |         |
|                      |                            | •             |             | Bentonite Sea |                        |                  |                     |           |         |
| ļ                    |                            |               |             | Concrete 0-1' |                        |                  |                     |           | Ì       |
|                      |                            |               |             | 1             |                        | rotective Casi   | 20                  |           |         |
|                      |                            |               |             | Completed Wi  | ar Standbilbe P        | TOTECTIVE CASI   | ny.                 |           |         |
|                      |                            |               |             |               |                        |                  |                     |           | ļ       |
| ļ                    |                            |               |             |               |                        |                  |                     |           | -       |
| ŀ                    |                            |               |             |               |                        |                  |                     |           |         |
| <u>i</u>             | CAMOLES                    | ENETDATION    | DC010771107 | 4407          | -N 60° -               | · ·              |                     |           |         |
| D**                  |                            | ENETRATION    | RESISTANCE  |               | alling 30" on 2        | U.D. sample      | r                   | DBODODTIO | vic.    |
| Densit               | ·                          |               |             | e Consistence | 1                      |                  | 1.                  | PROPORTIO | VO      |
| # of Hamme           |                            | very loose    | # of Hammer |               | very soft /            | soft             | trace               | 0 to 10%  | ·       |
| 0-4                  |                            | loose         | 0-2         | 3-4           | med-stiff /            | stiff            | little              | 10 to 20% |         |
| 5-9                  |                            | med/dense     | 5-8         | 9-15          | very stiff /           | hard             | some                | 20 to 35% |         |
| 10-29                |                            | dense         | 16-30       | 31+           | -                      |                  | and                 | 30 to 50% |         |
| 30-49                | 50÷                        | very dense    |             |               | <u> </u>               | 1                | <u></u>             | 1         |         |

| Location    | lient: Tighe & Bond<br>ocation Amherst, MA<br>roject: Old Amherst Landfill<br>ontractor: Seaboard Drilling, Inc. |            |             | 1                 | BOARD<br>LING, ING   |                  | Test Borin<br>Monitor W   |           | PGW-5    |
|-------------|--|------------|-------------|-------------------|----------------------|------------------|---------------------------|-----------|----------|
|             |  |            | g, Inc.     |                   | IG/SOIL L            |                  | Sheet No.                 |           | 1 of 2   |
|             |  | Sampler    | Core Barrel | Hammer (Wei       | ight-ib./fall-3      | 0")              | Start: 9/23/2005          |           |          |
| Туре        | HSA  | ss         | N/A         | 140/30            | 300/24               |                  | Finish: 9/23/2005         |           |          |
| O.D. Inch   | 8-1/2"   |            |             | Rig Type: E       | 3-53                 |                  | Driller: Frank Harrington |           |          |
| I.D. Inch   | 4-1/4"   |            |             |                   |                      |                  |                           |           |          |
| Depth (ft.) | Blows  | Sample     | Recovery    | FII               | ELD CLASSI           | FICATIONS A      | ND REMARK                 | s         | PID      |
| Range       | Per 6"   | No.        |             | <u> </u>          |                      |                  |                           |           |          |
| 0-2'        | 3-7-10-10  | S-1        | 19"         | Brown Very Fine   | SAND, Trac           | ce Silt, Trace C | organics.                 | -         | 0.0      |
|             |  |            |             |                   |                      |                  |                           |           |          |
| 5-7'        | 6-6-7-8  | S-2        | 18"         | Light Brown Fin   | e SAND, Tra          | ce Silt.         |                           |           | 0.0      |
| ·           |  |            |             |                   |                      |                  |                           |           |          |
| 10-12'      | 5-7-7-9  | S-3        | 12"         | Light Brown Fin   | e SAND, Tra          | ce Silt.         |                           |           | 0,0      |
| 15-17'      | 5-8-9-12   | S-4        | 16"         | Light Brown Ve    | ry Fine SAND         | D, Trace Silt.   |                           | ·         | 0.0      |
|             |  |            |             |                   |                      |                  |                           |           |          |
| 20-22'      | 5-7-12-18  | S-5        | 12"         | Light Brown Fir   | ne-Medium S <i>i</i> | AND, Trace Si    | lt, Trace Small           | Gravel.   | 0.0      |
| 25-27'      | 5-8-15-13  | S-8        | 12"         | Light Brown Ve    | ery Fine SANI        | D, Trace Silt.   |                           |           | 0.0      |
|             |  |            |             |                   |                      |                  |                           |           |          |
| 30-32'      | 12-18-18-1   | 4 S-7      | 14"         | Light Brown Ve    | ery Fine SANI        | D, Trace Silt.   |                           |           | 0.0      |
|             |  |            |             |                   | -U1 008 · · ·        | 28 O D           |                           |           | <u> </u> |
|             |  | PENETRATIC |             | E - 140 lb. Wt. F | aung 30° on 2        | ر ن.ن. sample    | 71                        | PROPORTIO | ONS      |
| Den         | <del></del>  | ·          |             | ive Consistence   | von cet /            | soft             | trace                     | 0 to 10%  |          |
| # of Hamr   |  | very loose | # of Hamme  |                   | very soft /          | stiff            | little                    | 10 to 20% |          |
| 0-          |  | loose      | 0-2         |                   | med-stiff /          | hard             | some                      | 20 to 35% |          |
| 5-          |  | med/dense  | 5-8         | 9-15              | very stiff /         | naru             | and                       | 30 to 50% |          |
|             | -29  | dense      | 16-30       | 31+               |                      | 1                | and .                     | 100.000   |          |
| 30-49       | 50+  | very dense |             |                   |                      | ٠                |                           |           |          |

| Client:         | Tighe & Bond | <del></del> |              | SF               | ABOARD           |                 | Test Bori   | ina/       |        |
|-----------------|--------------|-------------|--------------|------------------|------------------|-----------------|---|------------|--------|
|                 | Amherst, MA  |             |              | 1                | ILLING, IN       | C.              | Monitor \   |            | PGW-5  |
|                 | Old Amherst  |             |              | 1                | 26 SPFLD, M      |                 | 1   |            |        |
|                 | or: Seab     |             | na Inc       |                  | NG/SOIL I        |                 | Sheet No  |            | 2 of 2 |
| Contract        | Casing       | Sampler     | Core Barrei  |                  | eight-lb./fall-  |                 | Start:  | 9/23/2005  |        |
| Tura            | HSA          | SS          | N/A          | -1               | 300/24           | ,               | Finish:   | 9/23/2005  |        |
| Type            | 8-1/2"       | 33          | NIA          | Rig Type:        |                  | 1               | Driller:  | Frank Harr | ington |
| O.D. Inch       | 4-1/4"       |             | <del> </del> | True Type:       | D-00             |                 | Dimon   |            |        |
|                 | Blows        | Sample      | Recovery     | <del> </del> ,   | IEI D CLASS      | IFICATIONS A    | ND REMARI   | KS         | PID    |
| Depth (ft.)     | Per 6"       | No.         | Recovery     | i '              | ILLD GLAGO       | ii toritiono i  | ((1D ((D))))                                      |            |        |
| Range<br>35-37' | 10-12-15-14  | <del></del> | 14"          | Light Brown \    | /ery Fine SAN    | D, Trace Grave  | <u> </u>  |            | 0.0    |
| 30-37           | 10-12-15-14  | 3-6         | 14           | Light brown, v   | cili i ilia ovia | D, Trace Grave  | ji,   |            |        |
|                 |              |             |              |                  |                  |                 |   |            |        |
| 40-42'          | 10-19-22-24  | S-9         | 11"          | Light Brown F    | ine-Medium S     | AND, Trace Si   | t, Trace Smal                                     | l Gravel.  | 0.0    |
|                 |              |             |              |                  |                  |                 |   |            |        |
|                 |              |             |              |                  |                  |                 |   | :          |        |
| 45-47'          | 15-18-19-23  | S-10        | 10"          | Brown Mediur     | n-Coarse SAN     | D, Some Sam     | l Gravel (Wet                                     | ).         | 0.0    |
|                 |              |             |              |                  |                  |                 |   |            |        |
| 50-52'          | 18-21-25-17  | S-11        | 8"           | Brown, Mediu     | m-Coarse SAN     | ND, Some Sma    | ili Gravel (We                                    | 1).        | 0.0    |
|                 |              |             |              |                  |                  |                 |   |            |        |
|                 |              |             | ŀ            |                  |                  |                 |   |            |        |
|                 |              |             |              | Well Set @ 5     | 0.0'.            |                 |   |            |        |
|                 |              |             |              |                  |                  |                 |   |            |        |
|                 |              |             |              |                  |                  |                 |   |            |        |
|                 |              |             |              |                  |                  |                 |   |            |        |
|                 |              |             |              |                  |                  |                 |   |            |        |
|                 |              |             |              |                  |                  |                 |   |            |        |
|                 |              |             |              | 0.010 Slot Sc    | reen 5-50*       |                 |   |            |        |
|                 |              |             |              | No. 1 Well SA    | ND 3-50'.        |                 |   |            |        |
|                 |              |             |              | Bentonite Sea    | ıl 1-3'.         |                 |   |            |        |
|                 |              |             | <u> </u>     | Concrete 0-1     |                  |                 |   |            |        |
|                 |              |             |              |                  |                  | rotective Casir | na.   |            |        |
|                 |              |             | 1            | - Complete of    |                  |                 | <u>y</u>  |            |        |
|                 |              |             | 1            |                  |                  |                 |   |            |        |
|                 |              |             | 1            |                  |                  |                 |   |            |        |
|                 |              |             | 1            |                  |                  |                 |   |            |        |
|                 | SAMDLE!      | DENIETDATIC | N RESISTANC  | E _ 140 IN W/F I | alling 30" on 3  | P" () () sample | ,T  |            |        |
| Dens            |              | FENETRATIC  | <del></del>  | ive Consistence  |                  | . C.D. Sample   | <del>'                                     </del> | PROPORTIO  | NS     |
|                 |              | Juani lacas | # of Hamme   |                  | very soft /      | soft            | trace   | 0 to 10%   |        |
| # of Hamm       |              | very loose  |              | 3-4              | med-stiff /      | stiff           | little  | 10 to 20%  |        |
| 0               |              | loose       | 0-2          | 3-4<br>9-15      | very stiff /     | hard            | some  | 20 to 35%  |        |
| 5-              |              | med/dense   | 5-8          |                  | vory sum /       | liaiu           | and   | 30 to 50%  |        |
| 10-2            | •            | dense       | 16-30        | 31÷              |                  |                 | lairo   | 30 10 30 % |        |
| 30-49           | 50+          | very dense  |              |                  | 1                |                 | <u> </u>  |            |        |

and the second s

| Client:            | Tighe & Bon  | <u> </u>     |              | SE             | ABOARD                                  |                  | Test Bor       | ing/             |        |
|--------------------|--------------|--------------|--------------|----------------|---|------------------|----------------|------------------|--------|
|                    | Amherst, MA  |              |              | 1              | ILLING, IN                              | C.               | Monitor \      | Well ID:         | PGW-6  |
|                    | Old Amherst  |              |              | P.O. BOX 30    | 26 SPFLD, M                             | A 01101          |                |                  |        |
| Contract           | or: Seab     | oard Drillir | ıg, Inc.     | DRILLI         | NG/SOIL L                               | .OG              | Sheet No       |                  | 1 of 3 |
|                    | Casing       | Sampler      | Core Barrel  | Hammer (W      | eight-lb./fall-3                        | 30")             | Start:         | 9/26/2005        |        |
| Туре               | HSA          | SS           | N/A          | 140/30         |   | · ·              | Finish:        |                  |        |
| O.D. Inch          | 8-1/2"       |              |              | Rig Type:      | B-53                                    |                  | Driller:       | Frank Harr       | ington |
| I.D. Inch          | 4-1/4"       |              |              |                |   |                  | <u> </u>       |                  |        |
| Depth (ft.)        | Blows        | Sample       | Recovery     | F              | IELD CLASS                              | IFICATIONS A     | ND REMAR       | KS               | PID    |
| Range              | Per 6"       | No.          |              | <del> </del>   |   |                  |                |                  |        |
| 0-2'               | 4-8-6-7      | S-1          | 8"           | Brown Very Fi  | ne SAND, Trad                           | ce Silt, Trace C | rganics.       |                  | 0.0    |
|                    |              |              |              |                |   |                  |                |                  |        |
|                    |              |              |              |                |   |                  |                |                  |        |
|                    |              |              |              |                |   |                  |                |                  |        |
| C 71               | 0.5.7.0      | :0.0         | 10" -        | Light Brown Fi | aa ta Madium                            | CAND Trope S     | Sill and Trace | Small Gravel     | 0.0    |
| 5-7'               | 6-5-7-9      | `S-2         | 10           | Light Brown Fi | tie fo Mediniii                         | SAND, HACE       | om and trace   | Soliiaii Otavei. | 0.0    |
|                    |              |              |              |                |   |                  |                |                  |        |
|                    |              |              |              | İ              |   |                  |                |                  |        |
|                    |              |              |              |                |   |                  |                | ł                |        |
| 10-12'             | 8-8-7-9      | S-3          | 6"           | Light Brown Fi | ne SAND. Tra                            | ce Silt and Tra  | ce Small Gra   | vel.             | 0.0    |
| 70-12              | 0-0-1-0      |              |              | Light Sidning  | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |                  |                |                  |        |
|                    |              |              |              | 444            |   |                  | _              |                  |        |
|                    | 1            |              |              |                |   |                  |                |                  |        |
|                    |              |              |              |                |   |                  |                |                  |        |
| 15-17'             | 5-8-10-11    | S-4          | 9"           | Light Brown Fi | ne to Medium                            | SAND, Trace      | Silt and Some  | Small            | 0.0    |
|                    |              |              |              | Gravel.        |   |                  |                |                  |        |
|                    |              |              |              |                |   |                  |                |                  |        |
|                    |              |              |              |                |   |                  |                |                  |        |
|                    |              |              |              |                |   |                  |                |                  |        |
| 20-22'             | 5-6-6-10     | S-5          | 10"          | Light Brown Fi | ne SAND, Tra                            | ice Silt.        |                |                  | 0.0    |
|                    | ,            |              |              |                |   |                  |                |                  |        |
|                    |              |              |              | 1              |   |                  |                |                  |        |
|                    |              |              |              |                |   |                  |                |                  |        |
|                    | ļ <u> </u>   |              | ļ            |                |   |                  |                |                  | 2.2    |
| 25-27'             | 4-5-5-9      | S-6          | 15"          | Light Brown Fi | ne-Medium SA                            | AND, Trace Sil   | t, Trace Sma   | II Gravel.       | 0.0    |
|                    |              |              |              | 1              |   |                  |                |                  |        |
|                    |              |              |              |                |   |                  |                |                  |        |
|                    |              |              |              |                |   |                  |                |                  |        |
| 20.001             | <del> </del> | <del> </del> | /==          | 11-64 5 5      | - Madhin O                              | AND Torre Off    | A Troops Com   | II Croupi        | 0.0    |
| 30-32'             | 6-7-9-11     | S-7          | 12"          | Figur Brown F. | ne-medium S/                            | AND, Trace Sil   | i, itade oma   | ıı Glavei.       | 3.0    |
|                    |              |              |              |                |   |                  |                |                  |        |
|                    |              |              |              |                |   |                  |                |                  |        |
|                    | CAMPLE       | DENETRATIO   | N RESISTANCE | 140 lb 144 E   | alling 30° oc 2                         | * O D. sampler   |                |                  | L      |
| Dens               |              | PENEIRATIO   |              | ve Consistence | amily JU OH Z                           | J.D. Samplet     | -              | PROPORTIO        | NS     |
| # of Hamm          | -            | very loose   | # of Hammer  |                | very soft /                             | soft             | trace          | 0 to 10%         |        |
| # or mainin<br>0-4 | · ^~-        | loose        | 0-2          | 3-4            | med-stiff /                             | stiff            | little         | 10 to 20%        |        |
| 5-9                |              | med/dense    | 5-8          | 9-15           | very stiff /                            | hard             | some           | 20 to 35%        |        |
| 10-3               |              | dense        | 16-30        | 31+            | . or y out ( )                          | I I I            | and            | 30 to 50%        |        |
| 30-49              | 50+          | very dense   | 1000         | <b>0.1</b> /   |   |                  |                |                  |        |
|                    |              | 1,01, 061136 | .1           |                |   |                  | 1              | <u> </u>         |        |

|                      | Tighe & Bon<br>Amherst, MA<br>Old Amherst |               |                | DI                  | EABOARD<br>RILLING, II<br>3026 SPFLD, I | 1C.             | Test Bo<br>Monitor | r Well ID:   | PGW-6   |
|----------------------|---|---------------|----------------|---------------------|---|-----------------|--------------------|--------------|---------|
|                      | or: Seab                                  |               | ng, Inc.       |                     | ING/SOIL                                |                 | Sheet N            | o.           | 2 of 3  |
|                      | Casing                                    | Sampler       | Core Barrel    | Hammer (\           | Neight-lb./fall                         | -30")           | Start:             | 9/26/2005    |         |
| ype                  | HSA                                       | ss            | N/A            | 140/30              | 300/24                                  |                 | Finish:            | 9/26/2005    |         |
| D. Inch              | 8-1/2"                                    |               |                | Rig Type            |   | T               | Driller:           | Frank Hari   | rington |
| D, Inch              | 4-1/4"                                    |               |                | 7                   |   |                 |                    |              | _       |
| Depth (ft.)<br>Range | <del></del>                               | Sample<br>No. | Recovery       |                     | FIELD CLAS                              | SIFICATIONS     | AND REMA           | RKS          | PID     |
| 35-37 <sup>t</sup>   | 10-7-9-12                                 | S-8           | 12*            | light Drawn         | ine SAND, Tr                            | non Cill Trans  | o Conall Cease     | 1            | 0.0     |
|                      | 10-7-9-12                                 |               |                | Light Brown         | -ine saind, 11                          | ace Siit, Trace |                    | •            |         |
| 40-42'               | 9-11-16-15                                | S-9           | 12"            | Light Brown         | Very Fine SAN                           | D, Trace Silt a | and Trace Sm       | nall Gravel. | 0.0     |
| 45-47'               | 12-15-17-25                               | S-10          | 8"             | Light Brown         | Fine SAND, Tr                           | ace Silt and T  | race Small G       | ravel.       | 0.0     |
| 50-52'               | 19-22-30-33                               | S-11          | 4 <sup>n</sup> | Light Brown Gravel, | /ery Fine SAN                           | D, Trace Silt a | and Trace Sm       | ıall         | 0.0     |
| 55-57'               | 17-20-23-39                               | S-12          | 23*            | Brown, Very         | Fine SAND, Tr                           | ace Silt.       |                    |              | 0.0     |
| 60-62'               | 17-19-21-19                               | S-13          | 15*            | Light Brown         | /ery Fine SAN                           | D. Trace Silt.  |                    |              | 0.0     |
|                      |   |               |                | Light Sister        |   | , J.,           |                    |              |         |
|                      |   |               |                |                     |   |                 |                    | ·            |         |
| 65-67'               | 18-20-17-18                               | S-14          | 12"            | Light Brown         | ery Fine SAN                            | D, Trace Silt.  |                    |              | 0.0     |
| ·                    | SAMPLE F                                  | ENETRATIO     | N RESISTANCE   | - 140 lb. Wt. l     | Failing 30" on 2                        | " O.D. sampl    | ęr                 |              |         |
| Dens                 | <del></del>                               |               | •              | ve Consistence      | <del></del>                             |                 |                    | PROPORTIO    | NS      |
| of Hamm              | ***************************************   | very loose    | # of Hammer    |                     | very soft /                             | soft            | trace              | 0 to 10%     |         |
| 0-4                  | ····                                      | loose         | 0-2            | 3-4                 | med-stiff /                             | stiff           | little             | 10 to 20%    |         |
| 5-9                  |   | med/dense     | 5-8            | 9-15                | very stiff /                            | hard            | some               | 20 to 35%    |         |
| 10-2                 |   | dense         | 16-30          | 31+                 |   | ] <u>-</u>      | and                | 30 to 50%    |         |
| 30-49                | 50+                                       | very dense    | 1,000          | <b>V</b> 1.         |   |                 | ""                 | 100.000      |         |

| Client:      | Tighe & Bond                            |              |  | 1                 | ABOARD           |                                       | Test Bor  |           | PGW-6    |  |
|--------------|---|--------------|--|-------------------|------------------|---------------------------------------|-----------|-----------|----------|--|
|              | Amherst, MA                             |              |  | į.                | RILLING, IN      |                                       | Monitor \ | well in:  | 1 044-0  |  |
|              | Old Amherst                             |              |  |                   | 026 SPFLD, N     |                                       | 014 11-   |           | 3 of 3   |  |
| Contract     |   | pard Drillin |  |                   | ING/SOIL         |                                       | Sheet No  |           | 3 01 3   |  |
|              | Casing                                  | Sampler      | Core Barrel  | <b>-1</b>         | Veight-lb./fall- | 30")                                  | Start:    | 9/23/2005 |          |  |
| Туре         | HSA                                     | ss           | N/A  |                   | 300/24           | · · · · · · · · · · · · · · · · · · · | Finish:   | 9/23/2005 |          |  |
| O.D. Inch    | 8-1/2"                                  |              |  | _Rig Type:        | B-53             |                                       | Driller:  | Frank Har | rington  |  |
| I.D. Inch    | 4-1/4"                                  |              |  |                   |                  | <u> </u>                              | L         |           | I        |  |
| Depth (ft.)  | Blows                                   | Sample       | Recovery   |                   | FIELD CLASS      | IFICATIONS                            | AND REMAR | KS        | PID      |  |
| Range        | Per 6"                                  | No.          |  |                   |                  |                                       |           |           | <u> </u> |  |
| 75-77'       | 17-19-21-18                             | S-16         | 15"  | Light Brown, \    | Very Fine SAN    | D, Trace Silt.                        |           |           | 0.0      |  |
|              |   | }            |  |                   |                  |                                       |           |           |          |  |
|              |   |              |  |                   |                  |                                       |           |           |          |  |
|              | <u> </u>                                |              |  |                   |                  |                                       |           |           |          |  |
|              |   |              |  |                   |                  |                                       |           |           |          |  |
| 80-82'       | 15-17-18-23                             | S-17         | 19"  | Brown Fine S      | AND, Trace S     | lt (Wet).                             |           |           | 0.0      |  |
|              |   | 1            |  | ļ                 |                  |                                       |           |           | 1        |  |
|              |   |              |  |                   |                  |                                       |           |           |          |  |
|              | *************************************** |              |  |                   |                  |                                       |           |           | ł        |  |
|              |   |              |  |                   |                  |                                       |           |           |          |  |
| 85-87'       | 16-18-24-17                             | S-18         | 15"  | Brown Very F      | ine SAND and     | Silt.                                 |           |           | 0.0      |  |
|              |   |              |  |                   |                  |                                       |           |           |          |  |
| •            |   | 1            |  |                   |                  |                                       |           |           |          |  |
|              |   | 1            |  |                   |                  |                                       |           |           |          |  |
|              |   |              |  |                   |                  |                                       |           |           |          |  |
| 90-92'       | 19-20-22-23                             | S-19         | 12"  | Brown Very F      | ine SAND and     | Silt.                                 |           | -         | 0.0      |  |
|              |   |              |  | 1                 |                  |                                       |           |           |          |  |
|              |   |              |  | 1                 |                  |                                       |           |           |          |  |
|              |   | -            |  | Well Set @ 8      | 8.0'. (Total De  | pth).                                 |           |           |          |  |
|              |   |              |  |                   | •                | ,                                     |           |           |          |  |
|              |   | ·            |  |                   |                  |                                       |           |           |          |  |
|              |   |              |  |                   |                  |                                       |           |           |          |  |
|              |   |              | At the second se |                   |                  |                                       |           |           |          |  |
|              | İ                                       |              |  |                   |                  |                                       |           |           |          |  |
|              |   |              |  |                   |                  |                                       |           |           | <u> </u> |  |
|              |   | <u> </u>     | <del>                                     </del>   | 0.010 Slot Sc     | reen 8-88'       |                                       | ·· ·· ··  |           |          |  |
|              | Ī .                                     |              | 1  | No. 1 Well S      |                  |                                       |           |           |          |  |
|              |   |              |  | Bentonite Sea     |                  |                                       |           |           |          |  |
|              | ,                                       |              |  | Concrete 0-1      |                  |                                       |           |           |          |  |
|              | }                                       |              |  | ł                 | ith Standpipe F  | Protective Cas                        | sing.     |           |          |  |
|              |   |              |  |                   | 1.0              |                                       |           |           |          |  |
|              |   |              |  |                   |                  |                                       |           |           |          |  |
|              |   |              | 1  |                   |                  |                                       |           |           |          |  |
|              |   |              | 1  |                   |                  |                                       |           |           |          |  |
|              | SAMPLE                                  | PENETRATIO   | N RESISTANCI   | E - 140 lb. Wt. l | Falling 30" on 3 | 2" O.D. samo                          | ler       |           |          |  |
| Dens         |   |              | 7  | ive Consistence   |                  |                                       |           | PROPORTI  | ONS      |  |
| # of Hamm    |   | very loose   | # of Hamme   |                   | very soft /      | soft                                  | trace     | 0 to 10%  |          |  |
| #- OF FRANCE |   | loose        | 0-2  | 3-4               | med-stiff /      | stiff                                 | little    | 10 to 20% |          |  |
| 5-9          |   | med/dense    | 5-8  | 9-15              | very stiff /     | hard                                  | some      | 20 to 35% |          |  |
| 10-3         |   | dense        | 16-30  | 31+               | 1307 3000        | 11.00                                 | and       | 30 to 50% |          |  |
|              |   |              | 10-30  | <b>V</b> 1,       |                  |                                       | [         |           |          |  |
| 30-49        | 50+                                     | very dense   | <u>.l</u>  |                   |                  | L                                     |           |           | <u> </u> |  |

ij

| Client:     | Tighe & Bond |             |              |                       | BOARD            |                 | Test Bor     |            | PGW-7       |
|-------------|--------------|-------------|--------------|-----------------------|------------------|-----------------|--------------|------------|-------------|
| i           | Amherst, MA  |             |              | 1                     | LING, IN         |                 | Monitor      | well ib:   | FGVV-1      |
|             | Old Amherst  |             | _            | P.O. BOX 3026         |                  |                 | 0( )         |            | 1 of 2      |
| Contract    | or: Seab     |             |              | DRILLIN               |                  |                 | Sheet No     |            | 1012        |
|             | Casing       | Sampler     | Core Barrel  | Hammer (Wel           |                  | -30"}           | Start:       | 9/26/2005  |             |
| Туре        | HSA          | SS          | N/A          | 140/30 3              |                  | <del></del>     | Finish:      | 9/26/2005  |             |
| O.D. Inch   | 8-1/2"       |             |              | _∣Rig Type: B         | -53              |                 | Driller:     | Frank Har  | rington     |
| i.D. Inch   | 4-1/4"       |             |              |                       |                  | <u> </u>        |              |            |             |
| Depth (ft.) | Blows        | Sample.     | Recovery     | FIE                   | LD CLASS         | SIFICATIONS     | AND REMAR    | KS         | PID         |
| Range       | Per 6"       | No.         |              | 1                     |                  |                 | _            |            |             |
| 0-2'        | 8-9-10-9     | S-1         | 8"           | Brown Very Fine       | SAND, Tra        | ace Silt, Trace | Organics.    |            | 0.0         |
|             |              |             |              |                       |                  |                 | -            |            |             |
|             |              |             |              |                       |                  | -               |              |            |             |
| 5-7'        | 7-18-19-22   | S-2         | 6"           | Light Brown Very      | Fine SAN         | D, Trace Silt : | and Some Sma | ll Gravel. | 0.0         |
|             |              |             |              |                       |                  |                 |              |            |             |
| 10-12'      | 3-3-4-4      | S-3         | 12"          | Light Brown Fine      | SAND, Tr         | ace Silt.       |              |            | 0.0         |
| ,           |              |             |              |                       |                  |                 |              |            |             |
|             |              |             |              | }                     |                  |                 |              |            |             |
|             |              | Ì           |              |                       |                  |                 |              |            |             |
|             |              |             |              | ļ.                    |                  |                 |              |            |             |
| 15-17'      | 4-4-3-5      | S-4         | 2"           | Light Brown Fine      | SAND, Tr         | ace Silt.       |              |            | 0.0         |
|             |              |             |              |                       |                  |                 |              |            |             |
|             |              |             | İ            |                       |                  |                 |              |            |             |
|             |              |             |              |                       |                  |                 |              |            |             |
|             |              |             |              |                       |                  |                 |              |            |             |
| 20-22'      | 3-3-4-4      | S-5         | 12"          | Light Brown Very      | v Fine SAN       | D. Trace Silt   |              |            | 0.0         |
| 20-22       | 0.0-1-4      | 0-3         | '-           | Light Brown: Vory     | , 1 1110 O7 11 V | D, 11000 0110   |              |            |             |
|             |              |             |              |                       |                  |                 |              |            |             |
|             |              |             |              | +                     |                  |                 |              |            |             |
|             |              | ļ           | İ            |                       |                  |                 |              |            |             |
|             |              |             |              |                       |                  |                 |              |            | 0.0         |
| 25-27'      | 3-4-4-4      | Š-6         | 14"          | Light Brown Very      | y Fine SAN       | D, Trace Silt.  |              |            | 0.0         |
|             |              |             |              |                       |                  |                 |              |            |             |
|             |              |             |              |                       |                  |                 |              |            |             |
|             |              |             |              | İ                     |                  |                 |              |            | ļ           |
|             |              |             |              |                       |                  |                 |              |            |             |
| 30-32'      | 4-5-5-6      | S-7         | 18"          | Light Brown Very      | y Fine SAN       | D, Trace Silt.  |              | •          | 0.0         |
|             |              |             |              |                       |                  |                 |              |            |             |
|             |              |             |              |                       |                  |                 |              |            |             |
|             |              |             | 1            |                       |                  |                 |              |            | 1           |
|             | SAMPLE       | PENETRATIC  | N RESISTANCE | E - 140 lb. Wt. Falli | ing 30" on       | 2" O.D. samo    | ler          |            |             |
| Dens        |              |             |              | ive Consistence       | <u> </u>         |                 | -            | PROPORTIO  | NS          |
| # of Hamm   |              | want leases | # of Hammer  |                       | ery soft /       | soft            | trace        | 0 to 10%   | <del></del> |
|             |              | very loose  | 1            | •                     | ed-stiff /       | stiff           | little       | 10 to 20%  |             |
| 0-4         |              | loose       | 0-2          | i                     |                  | 1               | 1            | 20 to 35%  |             |
| 5-9         |              | med/dense   | 5-8          |                       | ery stiff /      | hard            | some         | 1          |             |
| 10-2        |              | dense       | 16-30        | 31+                   |                  |                 | and          | 30 to 50%  |             |
| 30-49       | 50+          | very dense  | <u> </u>     |                       |                  |                 | l            |            |             |

| Client:                   | Tighe & Bon      |                    |  | 1              | EABOARD          |                 | Test Bori                             |                        |        |
|---------------------------|------------------|--------------------|--|----------------|------------------|-----------------|---------------------------------------|------------------------|--------|
|                           | Amherst, MA      |                    |  | 1              | RILLING, IN      |                 | Monitor V                             | Vell ID:               | PGW-7  |
|                           | Old Amhers       |                    |  | 1              | 026 SPFLD, M     |                 |                                       |                        |        |
| Contract                  |                  | oard Drillir       |  | <del></del>    | ING/SOIL I       |                 | Sheet No                              |                        | 2 of 2 |
| <u> </u>                  | Casing           | Sampler            | Core Barrel  | <b>i</b>       | Veight-lb./fall- | 30")            | Start:                                | 9/26/2005              |        |
| Type                      | HSA              | ss                 | N/A  |                | 300/24           |                 | Finish:                               | 9/26/2005              |        |
| O.D. Inch                 | 8-1/2"<br>4-1/4" |                    |  | Rig Type:      | B-53             | ĺ               | Driller:                              | Frank Harr             | ington |
| Depth (ft.)               | Blows            | Sample             | Recovery   | 1              | FIELD CLASS      | IFICATIONS A    | AND REMARK                            | (S                     | PID    |
| Range                     | Per 6"           | No.                |  |                |                  |                 |                                       |                        |        |
| 35-37'                    | 4-6-5-5          | S-8                | 12"  | Light Brown V  | ery Fine SAND    | ), Trace Silt.  |                                       |                        | 0.0    |
| ikrejeundeblitterunderdem |                  |                    |  |                |                  |                 |                                       |                        |        |
| 40-42'                    | 3-6-5-4          | S-9                | 14"  | Light Brown V  | ery Fine SANE    | ),Trace Silt.   |                                       |                        | 0.0    |
|                           | ·                |                    | Accession of the Control of the Cont |                |                  |                 |                                       |                        |        |
| 45-47'                    | 3-4-6-6          | S-10               | 14"  | Light Brown V  | ery Fine SAND    | ),Trace Silt.   |                                       |                        | 0.0    |
|                           |                  |                    |  |                | •                |                 |                                       |                        | ·      |
|                           |                  | -                  |  |                |                  |                 |                                       |                        |        |
|                           |                  |                    |  |                |                  |                 |                                       |                        |        |
| 50-52'                    | 4-5-3-6          | S-11               | 12"  | Light Brown V  | ery Fine SANE    | D,Trace Silt.   |                                       |                        | 0.0    |
|                           |                  |                    |  | `              |                  |                 |                                       |                        | .      |
|                           |                  |                    |  |                |                  |                 |                                       | Ì                      |        |
|                           |                  |                    |  | Well Set @ 5   | 2.0.0            |                 |                                       |                        |        |
|                           |                  |                    |  |                |                  |                 |                                       |                        |        |
|                           |                  |                    |  |                |                  |                 |                                       |                        | 1      |
|                           |                  |                    |  |                |                  |                 |                                       |                        |        |
|                           |                  |                    |  | 0.010 Slot Sc  | reen 5-50'       |                 |                                       |                        |        |
| ,                         |                  |                    |  | No. 1 Well SA  |                  |                 |                                       | .                      |        |
|                           |                  |                    |  | Bentonite Sea  | 1-3'.            |                 |                                       |                        |        |
|                           |                  |                    |  | Concrete 0-1'  | •                |                 |                                       | .                      |        |
|                           |                  |                    |  | Completed wi   | th Standpipe P   | rotective Casir | ıg.                                   |                        |        |
|                           |                  |                    |  |                |                  |                 |                                       | ,                      |        |
|                           |                  |                    |  |                |                  |                 |                                       |                        |        |
|                           |                  |                    |  |                |                  |                 |                                       |                        |        |
|                           |                  | PENETRATIO         | N RESISTANCE   |                | alling 30" on 2  | " O.D. sample   | · · · · · · · · · · · · · · · · · · · | BOODORTIO              | NC NC  |
| Densi                     | <del></del>      | luanta i           | <del> </del>   | ve Consistence |                  |                 |                                       | PROPORTIO              | CFI    |
| # of Hammo                |                  | very loose         | # of Hammer  |                | very soft /      | soft            | trace                                 | 0 to 10%               |        |
| 0-4<br>5-9                |                  | loose              | 0-2  | 3-4<br>0.15    | med-stiff /      | stiff           | little                                | 10 to 20%              |        |
| 5-9<br>10-2               |                  | med/dense<br>dense | 5-8<br>16-30   | 9-15<br>31+    | very stiff /     | hard            | some<br>and                           | 20 to 35%<br>30 to 50% |        |
| 30-49                     | 9<br>50+         | very dense         | 10-00  | J1₹            | 1                |                 | ailu                                  | 30 10 30 /8            | .      |
| VU: TV                    | · ·              | Iver y ucuse       |  |                | 1                | l               | I .                                   | <u>.l.,</u>            |        |

| Contract    | Old Amherst | Londfill    |              | i –                  | BOARD<br>LING, INC<br>SPELD, MA |                              | Monitor \           | Well ID:               | B-05-0 |
|-------------|-------------|-------------|--------------|----------------------|---------------------------------|------------------------------|---------------------|------------------------|--------|
|             |             |             | na Inc       | DRILLING             |                                 |                              | Sheet No            | ).                     | 1 of 1 |
| Гуре        |             | Sampler     | Core Barrel  | Hammer (Weig         |                                 |                              | Start:              | 9/22/2005              |        |
| ype         | <u> </u>    | SS          | N/A          | 140/30 30            |                                 | •                            | Finish:             | 9/22/2005              |        |
| O.D. Inch   | 8-1/2"      | 33          | IVA .        | Rig Type: B-         |                                 |                              | Driller:            | Frank Harr             | ington |
|             | 4-1/4"      |             | <u> </u>     | 19 . ,   -           | .                               |                              |                     |                        |        |
| D. Inch     |             | Sample      | Recovery     | FIEI                 | LD CLASSIF                      | ICATIONS                     | AND REMAR           | KS                     | PID    |
| Depth (ft.) | Per 6"      | No.         | Recovery     |                      |                                 |                              |                     | Į                      |        |
| Range       | 5-6-6-8     | S-1         | 10"          | Brown Very Fine      | SAND, Trace                     | Silt. Trace                  | Organics.           |                        | 0.0    |
| 0-2'        | 0-0-0-0     | <b>3-1</b>  | 10           | Didan very mio       | 0,110,1100                      | <b>.</b>                     |                     |                        |        |
|             |             |             |              |                      |                                 |                              |                     |                        |        |
|             |             |             | 11"          | Brown, Very Fine     | SAND Trac                       | e Sill Trac                  | e Small Gravel      |                        | 0.0    |
| 5-7'        | 9-12-12-10  | S-2         | ] 11"        | Brown, very rine     | IOAND, HAC                      | .e om, mac                   | o Official Official | •                      |        |
|             |             |             |              |                      |                                 |                              |                     |                        |        |
| 10-12'      | 6-6-7-8     | S-3         | 8"           | Black, Fine-Medi     | um SAND, L                      | andfill Debr                 | is.                 |                        | 0.8    |
|             |             |             |              |                      |                                 |                              |                     |                        |        |
| 15-17'      | 10-11-8-9   | S-4         | 8"           | Black to Brown F     | fine-Medium                     | SAND and                     | Landfill Debris.    |                        | 13.2   |
|             |             |             |              | ,                    |                                 |                              |                     |                        |        |
| 20-22'      | No Data     | S-5         | 8"           | Black, Fine-Medi     | ium SAND a                      | nd Landfill (                | Debris.             |                        | 6.8    |
|             |             |             |              |                      |                                 |                              |                     |                        |        |
| 25-27'      | 15-18-16-13 | S-6         | 0°           | No Recovery.         |                                 |                              |                     |                        |        |
|             |             |             |              |                      |                                 |                              |                     |                        |        |
| 30-32'      | 8-12-9-11   | S-7         | 12"          | Light Brown to G     |                                 |                              |                     |                        | 0.3    |
| 35-37'      | 9-8-11-10   | S-8         | 12"          | Light Brown, Ve      |                                 |                              |                     |                        | 0.0    |
|             | SAMPLE      | PENETRATION | ON RESISTANC | CE - 140 lb. Wt. Fal | ling 30" on 2                   | " O.D.·sam <sub>l</sub><br>T | oler                | PROPORTIO              | ONS    |
| De          | nsity       |             |              | sive Consistence     |                                 |                              | <u> </u>            |                        |        |
| # of Ham    | mer Blows   | very loose  | # of Hamm    |                      | ery soft /                      | soft                         | trace               | 0 to 10%               |        |
| (           | )-4         | loose       | 0-2          |                      | ned-stiff /                     | stiff                        | little              | 10 to 20%              |        |
| :           | 5-9         | med/dense   | 5-8          | 9-15 v<br>31+        | ery stiff /                     | hard                         | some<br>and         | 20 to 35%<br>30 to 50% | -      |

| R. E. CHAPMAN CO.   |  |
|---|--|
| OAKDALE, MASSACHUSETTS  |  |
| DIAL 835-3727 — 835-3221  |  |
| Job Location Amheas T, MASS   |  |
| Job Location Allander July 1  | / Q 100 100 100 100 100 100 100 100 100 1  |
| Date 2/5/68 Hole No. 75/-   | 62.  |
| Date 2/5/68 Hole No. 72-72 Construction Started 25 ft CD \$7 Orinished 7 CD \$7 |  |
| LOG OF HOLE   |  |
| Depta   | No. of 30" blows on spoon of Spoon in inches   |
| From To CLASSIFICATION of MATERIALS   | fo. of blow and blow of Signature for the fin  |
| Ground<br>Surface   | A   B  |
| 01+97 SI/Ty hr C/ay   |  |
| 91-30 GNE BY SENET SILT   |  |
| 33' fine by Sand & Small She  | Pro GARDIES  |
| 27-116" GIVE BR STARTY KECKS  |  |
| 11455 GAR BRSJANHANIELD CT  | 0112   |
| 55 104 SITY GREY SANdrela   |  |
|   |  |
|   |  |
| · · · · · · · · · · · · · · · · · · ·   |  |
| 110   |  |
| STOP 21 104°  |  |
|   |  |
|   | The state of the s |
|   |  |
| Used 104 ft inches of casing  |  |
| COM SO  | " Vacuums  |
| 87 - 11 - 12 - 12 - 12 - 12 - 12 - 12 - 1                                       | ά διομμα τελει τ   |
| 12 1/6 75 55 FT SEL ST  | 7.e. s? )===================================   |
| 60 SETY STROP 30 SET SCREEN   | 130 01   |
| bellum  |  |
|   |  |
| Em BR War   | and the same of the same of the same of the same of the same of the same of the same of the same of the same of  |
| espotement survey and the second  |  |

 $\left\{\begin{array}{c} \widetilde{J}_{j} \\ \widetilde{J}_{j} \end{array}\right\}$ 

| $\mathbb{R}$ | E. | $\mathbb{C}_{i}^{x}$ | <u> IAP</u> | M | AN     | CO.   |
|--------------|----|----------------------|-------------|---|--------|-------|
|              |    |                      |             |   |        | SETTS |
| ,            | DI | 28 I.A               | 15-3727     |   | 835-32 | 21    |

| ob Location PM 475T 17 235.                            |   |
|--|---|
| 7/4/10 Hole No. 2-4                                    | 18  |
| Started ESTOFIF Finished                               |   |
| LOG OF HOLE  |   |
| Depth From To CLASSIFICATION of MATERIALS              | No. of 20"<br>blows<br>on spoon<br>Penetration<br>of Spoon<br>In inches |
| Ground Ground  |   |
| 0+11 Sandy Bridlay                                     |   |
| 11 79' GNO DO SOND V Shar                              | MARGUEL.  |
| 37 137 Have I as med DA Savar                          | 408322.032  |
| 37 31 1111/ ba Salld Clay                              | 7 1010  |
| 51 71 SUTY be Sand & Sharp 6                           |   |
| 711 + 85 SITY AM SARD YCLOY.                           |   |
|  |   |
|  |   |
|  |   |
|  |   |
| STOP ST SSFT   |   |
|  |   |
|  |   |
|  |   |
| Used 8.5 ft inches of casi Well rated at 10 G.P.M. 2.5 | ng<br>" Vacuum  |
| Water level is /27" ft. be                             | elow ground leve  |
| Remarks 917 10-97 00 30 5/17 5                         | SC 22 2 2 3/  |
| 3275 7/27:   |   |
|  |   |
| )  |   |
| Foreman BAWSQ  |   |
|  |   |

# R. E. CHAPMAN CO. OAKDALE, MASSACHUSETTS DIAL 835-3727 — 835-3221

| Job Locat  | ion H. D. D. + 25 S. 1 11 25 S. 1 |
|--|-----------------------------------|
| Date S./   | 7/68 Hole No. # 3-0               |
| Started 5  | offest Finished                   |
|  | LOG OF HOLE                       |
| Depth  |                                   |
| . From To  | CLASSIFICATION of MATERIALS       |
| Ground<br>Burface  | N S                               |
| 0'+10  | Grand Colony                      |
| 104-18   | Soudy by Olype                    |
| 184-31   | Med. Do Sall & Carollel           |
| 31 +49   | Fore Mar ba Committed             |
| 129414   | SIETE CHOY SONDYCLOS              |
| 64+71  |                                   |
| <u> </u>   | SITTY CARY SAND WChip             |
|  |                                   |
|  |                                   |
|  |                                   |
|  | \$730 27 79 67                    |
|  | ,                                 |
| ·  |                                   |
| <u> </u>   | S Programme and the second        |
| Used7.2  | ft inches of casing               |
| Well rated   | at 35 G.P.M. 25 ".                |
|  | l isft. below grou                |
| and the second second  | Set loft of 30 slot since         |
| A Property of the Control of the Con | 116WS 149 TO 129 ST 35 TO 413     |
| Crisiny  | A & Sens you Past IN.             |
|  | eriterikita ili eta eritetakea e  |
| Foreman  | ETREVALL                          |
|  |                                   |

### R. E. CHAPMAN CO. OAKDALE, MASSACHUSETTS DIAL 895-3727 — 895-3221

| Job L       | ocatio           | n                           |                                 |                                       |
|-------------|------------------|-----------------------------|---------------------------------|---------------------------------------|
| Date.       | 2/8              | /68 Hole No. 4 78           | <i>;</i><br>                    |                                       |
| )<br>Starte | ed               | Finished                    |                                 |                                       |
| 1           |                  | LOG OF HOLE                 |                                 | · · · · · · · · · · · · · · · · · · · |
| D.          | pth              |                             | ji                              | 16                                    |
| Ground      | То               | CLASSIFICATION of MATERIALS | No. of 30'<br>blows<br>on spoon | Penetration<br>of Spoon<br>In Inches  |
| Surface     | -9               | fire Con Clark              | -                               | P4                                    |
| 191         | 26               | Frem Chay Clay              | 1                               |                                       |
| 26          | 43'              | Sandy                       | Shar;                           | Ţ.                                    |
|             | · · · ·          | G122110/                    | 1                               |                                       |
| 43          | 49'              | Company fine 6- SANd+SI     | 370                             | <u> 173)144  </u>                     |
| 49          | 521              | SITY br. SANDYCHY.          | <u>'</u>                        |                                       |
|             |                  | 7                           | <u> </u>                        |                                       |
|             |                  | ·                           |                                 |                                       |
|             |                  |                             |                                 |                                       |
|             |                  | STAP at 57ft                |                                 |                                       |
| ·           |                  | /                           | , ]                             |                                       |
| .           |                  |                             |                                 |                                       |
|             |                  | 19                          | 1                               |                                       |
|             |                  |                             |                                 |                                       |
| Used        | 57               | ftinches of casing          |                                 |                                       |
|             |                  | t /5 GPM 25                 |                                 |                                       |
|             |                  | s 3-4, ft. below            | ground                          | level                                 |
|             |                  | eT loft of 30 S/o I         |                                 |                                       |
|             |                  | LFT Hand To Clean           |                                 | *******                               |
|             | 1.5.1 <u>. N</u> | G+SCREEN left in            |                                 | ******                                |
| *********   |                  |                             |                                 |                                       |
| Forema      | m .S             | Pilos de-                   | **-                             |                                       |
|             |                  |                             |                                 |                                       |

### R. E. CHAPMAN CO. OAKDALE, MASSACHUSETTS

ONELALL, DINDONGRUDE |

| DIAL 835-3727 — 8  | 335-3221      |
|--|---------------|
| Job Location MASS MESS   |               |
| Date 19/13 Hole  | No 5 - 63     |
| 10017 North OF 1868  | ished         |
| LOG OF HO  |               |
| Depth.   |               |
| From To CLASSIFICATION of M  | 1 10          |
| Ground<br>Sutface  | Z             |
| 0'+9' fine Am. Sand  | 40/34         |
| 91786 fine Br. Stor  | 1             |
| The SA SING BA STANT   | SMO//GIFE     |
| 37 45 five ba Sand   | LANGES Green  |
| 45+54 have dark brown  | (Sand + Cha   |
| 54-73 FINE BHI SING SO   | me 5/17       |
| 173 479 SITY GARV SE   | Wed           |
| The state of the s | 4884 - A Habi |
|  | in and the    |
|  |               |
| STOP ST  | 1945          |
| · 新发生 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图  |               |
| <b>秦</b> 李公 (1994年) 本籍的基本的表示。  |               |
| 事 生活 [1] 10 [1]  |               |
| Used ft inches   |               |
| Well rated at 55 G.P.M   |               |
| Water level is   | ft. below gro |
| Remarks SOT Joff of 3  | 65107 Se      |
| 25 follows 5 64767   | V+2 4.3/6.    |
| CBSING ASCREEN /   | TT IN         |
|  |               |
| 2  |               |

## R. E. CHAPMAN CO. OAKDALE, MASSACHUSETTS DIAL 835-3727 — 835-3721

| Date.                     | 112/                | Hole No. 17 4                      | 2§                              |                                      |
|---------------------------|---------------------|------------------------------------|---------------------------------|--------------------------------------|
| Starte                    | ed                  | Finished                           |                                 |                                      |
|                           |                     | LOG OF HOLE                        |                                 |                                      |
| De                        | ptà                 |                                    | 30.1<br>on                      | tfon<br>Gu<br>Fe                     |
| From<br>Ground<br>Satisce | То                  | CLASSIFICATION of MATERIALS        | Ma, 54 30"<br>blows<br>on apoon | Fenetration<br>of Spoon<br>in inches |
|                           |                     |                                    |                                 |                                      |
| <u> </u>                  |                     |                                    |                                 |                                      |
| i                         |                     | ·                                  |                                 | <del></del>                          |
| <u> </u>                  |                     |                                    |                                 |                                      |
|                           |                     | SAME 25 #5                         |                                 |                                      |
|                           |                     | To 50 FT.                          |                                 |                                      |
| <del>-</del>              |                     |                                    |                                 |                                      |
|                           |                     |                                    |                                 |                                      |
|                           | ·                   |                                    |                                 |                                      |
|                           |                     |                                    |                                 |                                      |
|                           |                     |                                    |                                 | -                                    |
|                           |                     |                                    |                                 |                                      |
| i                         |                     |                                    |                                 |                                      |
| <u>-</u>                  |                     |                                    |                                 |                                      |
| Well 1                    | ated. a             | ft inches of casing t 35 G.P.M. 30 | A. 1.                           |                                      |
|                           |                     | is 3-2 ft. below                   |                                 |                                      |
|                           |                     | et loft af ho SI<br>N 42TO50FT     | 07                              |                                      |
| <u></u>                   | .60.61.61<br>2007 A | 19: 4 SEPENN /EFT                  | ZPL                             |                                      |

## R. E. CHAPMAN CO. OAKDALE, MASSACHUSETTS DIAL 835-3727 — 835-3221

| Date:             | 1//3               | /48 Hole No. 7 - 68  | χ                  |
|-------------------|--------------------|--|--------------------|
| Start             | 57                 | West of #576 Finished  |                    |
|                   |                    | LOG OF HOLE  | -                  |
| · : ———           | epth .             |  | 30.                |
| Ground<br>Bulface | То                 | CLASSIFICATION of MATERIALS  | No. of 90<br>blows |
|                   |                    | Top Soil   |                    |
| . — —             |                    | SOFT GRAY CLAY   |                    |
|                   |                    | firm GARV Clay   |                    |
|                   |                    | fine he SAND SomeClay  |                    |
|                   |                    | FINE BY SANGY Gravel   |                    |
|                   |                    | fine by Sand Traces of C   | (21/:              |
|                   |                    | fine by saild  |                    |
| 3                 | 85                 | SHTY GRAY SAND   |                    |
|                   |                    | the state of the s |                    |
|                   |                    | <b>经验证据的证据的证据</b>  |                    |
| 14.44<br>10.44    | 13 To              | STOP 87 85-97  | 4.5                |
|                   | 特色新                | The second second second second  |                    |
|                   |                    |  |                    |
|                   |                    |  |                    |
| Used.             | 8.5                | ft inches of casing  |                    |
| Well              | rated              | at 35 G.P.M 35   | V                  |
| Wate              | r level            | is ft, below   | grow               |
|                   |                    | etiletof 305/ot scaeeN25   |                    |
|                   | 7/6                | + 3-PM 57Ta 64 20GPA   | 77.                |
| 55                | 75 Sy              | of property of the party of the |                    |
|                   |                    |  |                    |
| Fore              | nan i              | CAME DOLLY COURT   |                    |
|                   |                    |  |                    |
|                   |                    |  |                    |
| فالمنفذة فالأما   | المناصة والمتلفظات | Les timber the said of the strand of the said of the said  |                    |

| Hamo of E                          | orities VI, W,             | L-E-                  | Name                                     | s of 11             | elpers       | 7. (                | C No.           | 11 - 7             | '1 j                       |  |
|------------------------------------|----------------------------|-----------------------|--|---------------------|--------------|---------------------|-----------------|--------------------|----------------------------|--|
| ್ರೀಕ್ರಿಸ್ ಮತ್ತ <del>ಿದ್ದಾರೆ.</del> | 6 Location Town ed: 9-9-7/ |                       | 19-11-11-11-11-11-11-11-11-11-11-11-11-1 | Date                | Starte       |                     | T-71            |                    | iniated 9-15-              |  |
| Hole No.                           | 10 - PA                    | PATAZ                 | 20 Prop.                                 |                     |              |                     | Dirtip          |                    | <del>-</del>               |  |
| Depth                              | (I) Classification         | 01                    |  | Dept                |              |                     | ssilication o   | o!<br>             |                            |  |
| From To                            | Material                   |                       | Feet of Screen Exposed                   |                     | To           | Material            |                 | Feet of Screen Eri |                            |  |
|                                    | FINE BY SAND               |                       | 5  | <u>C</u>            | 00000        |                     |                 | دا                 |                            |  |
|                                    | 1, 1, 17                   |                       | Size of Screen & Stot                    | 7                   |              | <del></del>         | - 11            |                    | Size of Screen & 5         |  |
|                                    | 1, ", ",                   |                       | 1/4" \$ 30                               | 14                  | ·            | <del></del>         | Sr SAM          |                    | 1/4" 52 /1                 |  |
|                                    | 25 35 FINE GI SAND         |                       | Screen Left in                           |                     | 35           | [1:                 | 11. 11          |                    | Screen Left in             |  |
|                                    | 7, HE B. SI                | 5-W/5 Risen           | 28                                       | <b>↓</b>            | <u> </u>     |                     | <del>-</del>    | 5-45               |                            |  |
|                                    | Pine Br Silty              | Screen Pulled Out     | <del></del>                              | 42                  |              | Jr Si               |                 | Screen Pulled Out  |                            |  |
|                                    | 44 56 11 11 2 11           |                       |  | i                   | 49           | <del> </del>        | <u> </u>        | 11                 |                            |  |
|                                    | 56 63 11 11 11 11          |                       | Pipe Left in                             | 49<br>Si            | 56           |                     |                 | 1,                 | Pipe Lelt in               |  |
| ,                                  | 3 72 FIAR Br SAND          |                       | 108'                                     | 64                  | ·            |                     |                 | +0181              | 57                         |  |
| ?0 77                              | 13 4                       |                       | Pipe Pulled Out                          | ]                   |              |                     | Mengr SAND+Clay |                    | Pipe Pulled Out            |  |
|                                    | 11 (1 (1)                  |                       |  | 7/_                 | 1/2          | FINZ gr SAND & S.IT |                 |                    |                            |  |
|                                    | Mingr Re                   |                       | Remarks                                  |                     |              | Res                 | 15 1.L          |                    | Remarks<br>EXPOSE 10'      |  |
| 27 27                              | >1112 gr 5/11/0            | Exposes ser           |  |                     | 1127         | 360                 |                 | Screen G5-         |                            |  |
|                                    | 1 11 11                    |                       | 107-112                                  |                     |              |                     |                 |                    | WOULD NOT CI               |  |
| 136 112                            | PINE RED SA.               | ND                    | W.L. 20'6/7 Tief.                        |                     | <del> </del> |                     |                 |                    | Reset Scr                  |  |
| 1                                  | Refusile                   |                       | P. P. A.G. 6"                            |                     |              |                     |                 |                    | 57-62 Pur                  |  |
| ,                                  | Lettin for                 |                       | POMIS G.P.M.                             |                     | <del> </del> | Pum                 | P 5 0           | G. P.M.            | W/Deep well<br>w.L. 40 T.0 |  |
|                                    | Let/ 14 +01                | 9021                  |  |                     |              |                     |                 |                    | Pire MG. E                 |  |
|                                    |                            | Pump Test on Hole No. |  |                     |              |                     |                 |                    |                            |  |
|                                    | Time Dr. Down              | Pump Test o           | Static and Other Info                    | D                   | ate          | Time                | Dr. Down        | G. P. M.           | Static and Other           |  |
| 1                                  |                            |                       |  | 1                   |              |                     |                 |                    |                            |  |
| <u></u>                            |                            |                       | •  |                     |              |                     |                 |                    |                            |  |
| r                                  |                            | 1                     |  |                     |              |                     |                 | <u> </u>           |                            |  |
| <del></del>                        |                            | 1                     |  |                     | ·            |                     |                 |                    | · ·                        |  |
| ,                                  |                            | - <del>-</del>        |  |                     |              |                     |                 |                    |                            |  |
|                                    |                            |                       |  | <u> </u>            |              |                     | ļ               |                    |                            |  |
| . لر.                              |                            | -                     |  | <u> </u>            |              |                     | 1               | -                  |                            |  |
| . <u></u>                          |                            |                       |  |                     |              |                     | ļ               |                    |                            |  |
|                                    |                            |                       |  | <b> </b>            |              |                     | ļ               |                    | -                          |  |
| ·                                  |                            |                       |  | ļ                   |              | ļ                   | 1               | <u> </u>           | <del>-  </del>             |  |
|                                    |                            |                       |  | <u> </u>            |              | 1                   |                 | ļ                  |                            |  |
|                                    |                            |                       |  | <br>- <del>  </del> |              | -                   | -               | -                  |                            |  |
| , \                                |                            |                       |  | <u> </u>            |              | -                   |                 | <u> </u>           |                            |  |
| <u> </u>                           |                            |                       | !  | il                  |              | l                   |                 | , i                |                            |  |

## Well 11 - near landfill pond

75

| Dopth | Description  |
|-------|--|
| 0-7   | Artificial fill, gravel, sandy, predominantly medium sand, much coarse sand, much very coarse sand, man granules, many pebbles, many cobbles, sub-angular to sub-rounded, up to 3"diameter.  |
| 7-14  | Sand, yellowish-brown, predominantly medium, much coarse, some very coarse, a few granules, a few pebbles, mostly sub-rounded some rounded, up to l'adiameter. A little fine sand. Very clean.   |
| 14-21 | Sand, gravelly, brownish-gray, predominantly medium, much coarse, much very coarse, many granules, many small pebbles, mostly sub-angular. Very little fine sand. Very clean.  |
| 21-28 | Sand, gravelly, light brown, predominantly medium, some coarse, some very coarse, a few granules and many small pebbles, mostly sub-angular up to 1" diameter, but mostly about .5" diameter. A few small (.5" diameter) chunks of iron-cemented sand. Much fine sand. |
| 28-35 | Sand, light brown, predominantly medium, a little coarse, trace of very coarse, trace of granules, some fine sand.   |
| 35-42 | Sand, light brown, predominantly medium, a little coarse, a little very coarse, a few angular granules, some fine sand.  |
|       |  |
| 42-49 | Sand, light brown, predominantly medium, a little coarse, a little very coarse, a few angular granules, some fine sand. Some iron staining.  |
| 49-56 | Sand, yellowish-brown, predominantly fine, some medium, trace of coarse, much very fine.   |
| 56-64 | Sand, brownish-gray, predominantly fine, some medium, trace of coarse, much very fine sand.  |
| 64-71 | Sand, gravelly, reddish-gray, prodominantly medium, some coarse, some very coarm, some granules, many small pebbles, sub-angular to sub-rounded up to about .6" diameter. Much fine sand, much very fine sand, many chunks of brick red sandy and silty clay.          |
| 71-75 | Sand, light brown, predominantly coarse, much very coarse, many granules, many small angular peobles up to .3" diameter. Much medium sand, some fine sand.   |

Refusal, bedrock.

3-80 NEW YORK CO., INC.

| TEST WEL  | L RECORD                                |                    |   |                    |                   |                                  |                       |                        | 3 <sup>7*</sup>   |            |
|---|---|--------------------|---|--------------------|-------------------|----------------------------------|-----------------------|------------------------|-------------------|------------|
| 1   |   | 15                 | 1-1-8<br>mhers  | 30                 |                   | YES?                             | r WELL H              | o                      | <i></i>           | -          |
| _[  |   | DATE 10            | mhers   | T,                 | MAS               |                                  |                       |                        | InaT              | f          |
| ·   | <b>'</b>                                | roa                | Down  | R.R                | 1. E-             | ows !                            | <u>sewo</u>           | 108 1                  |                   | í          |
| LOG OF WELL   |   |                    |   | 70                 | wn                |                                  |                       |                        |                   | <b>-</b> ) |
| -   | 1                                       | PROPERTY           |   |                    | SIVE APP          | ROXIMA                           | TE DIST               | ANCES                  |                   |            |
| GROUND SURFACE 0  | \                                       | SKETCH OF          | LOCATION  |                    |                   |                                  |                       |                        |                   | ĺ          |
| T SUTU  |   |                    |   |                    |                   |                                  |                       |                        | N                 |            |
| ine SITY  |   |                    | _ *   |                    |                   |                                  |                       |                        | .                 |            |
|   |   |                    | 12  | -                  |                   |                                  | •                     |                        |                   | Ï          |
| J Sand Brown  |   |                    | - 0   |                    |                   |                                  |                       |                        |                   |            |
| Sand Brown  | 9.5                                     | 4                  | _   |                    |                   |                                  |                       | •                      | •                 |            |
| 70 12   |   |                    | 1-1-  |                    | OK RO             | <u> </u>                         |                       | <del>-</del>           |                   |            |
|   |   |                    | 1-1-  | -                  |                   |                                  |                       |                        |                   | W          |
| Gray Clay   |   | T                  | 600   |                    |                   |                                  | •                     |                        |                   | ĭ          |
| array 1   |   |                    | 1   |                    |                   |                                  |                       |                        |                   | }          |
| - 1   |   |                    | -11   |                    | ·                 | 124 14211                        |                       |                        |                   |            |
| 7 12 7023   |   | 14574              |   | 07                 | <u>a</u> (x-      |                                  |                       |                        |                   | }          |
|   |   | -                  | <b>-</b> 17   |                    |                   |                                  |                       |                        |                   | Į<br>Į     |
| Gray SIII   |   | J-  -              |   |                    |                   |                                  |                       |                        |                   |            |
| ( ray   | TOTAL                                   | ن ا                | 0,#   |                    |                   |                                  |                       | •                      | •                 | 7          |
|   | WELL<br>DEPTH                           | -                  | _ 3   |                    | ·                 |                                  |                       |                        |                   | (          |
| 23 TO 116   |   | ORS. WEL           | L: NO   | <u> </u>           | DISTANC           | E                                |                       | DEPTH                  |                   |            |
| 33101.0   | .02                                     |                    | NO  |                    | DISTANC           | E                                |                       | DEFTH                  |                   |            |
| I   |   |                    |   |                    |                   |                                  |                       | OPENIAG                |                   |            |
| Shara   | 123                                     | WELL SC            | REEN: TYPE -  |                    | FENG              | тн                               |                       |                        |                   |            |
| boken + Shorp   |   | WELL SC            | REEN: TYPE —  | URED FRO           | •                 |                                  | ELEVATIO              | N:                     |                   |            |
| roken + Shorp   | 100                                     |                    | DATA (MEAS  | URED FRO           | •                 |                                  | GPM                   | PUMP.                  | OBS.              | 05<br>W¥   |
| Jayo Willi  |   | WELL SC<br>PUMPING | PUMP.   | 1                  | OM TOP O          | F PIPE) !                        | )                     | 1                      |                   |            |
| Jayo Willi  |   |                    | PUMP.   | 035.               | OM TOP O          | F PIPE) !                        | )                     | 1                      |                   |            |
| brelwill<br>T+Blue  |   |                    | PUMP.   | 035.               | OM TOP O          | F PIPE) !                        | )                     | 1                      |                   |            |
| Lavel Willi   |   |                    | PUMP.   | 035.               | OM TOP O          | F PIPE) !                        | )                     | 1                      |                   |            |
| Proken + Shorp<br>Javel with<br>Jay 116 To 123                  |   |                    | PUMP.   | 035.               | OM TOP O          | F PIPE) !                        | )                     | 1                      |                   |            |
| Jay 116 To 123  |   |                    | PUMP.   | 035.               | OM TOP O          | F PIPE) !                        | )                     | 1                      |                   |            |
| BOTTOM OF TEST HOLE   |   |                    | PUMP.   | 035.               | OM TOP O          | F PIPE) !                        | )                     | 1                      |                   |            |
| BOTTOM OF TEST HOLE  REMARKS                                    | 07,                                     |                    | PUMP.   | 035.               | OM TOP O          | F PIPE) !                        | )                     | 1                      |                   |            |
| BOTTOM OF TEST HOLE  REMARKS                                    | 07,                                     | TIME GI            | PUMP.   | 035.               | OM TOP O          | F PIPE) !                        | )                     | 1                      |                   |            |
| BOTTOM OF TEST HOLE  REMARKS                                    | 07,                                     | TIME GI            | PUMP.   | 035.               | OM TOP O          | F PIPE) !                        | )                     | 1                      |                   |            |
| BOTTOM OF TEST HOLE  REMARKS                                    | 07,                                     | TIME GI            | PUMP.   | 035.               | OM TOP O          | F PIPE) !                        | )                     | 1                      |                   |            |
| BOTTOM OF TEST HOLE  REMARKS                                    | 07,                                     | TIME GI            | PUMP.   | 035.               | OM TOP O          | F PIPE) !                        | )                     | 1                      |                   |            |
| BOTTOM OF TEST HOLE  REMARKS                                    | 07,                                     | TIME GI            | PUMP.<br>WELL.  | OBS.<br>WELL       | OM. WELL          | TIME                             | GPM                   | WELL                   | WELL              |            |
| BOTTOM OF TEST HOLE  REMARKS                                    | 07,                                     | TIME GI            | PUMP.<br>WELL.  | OBS.<br>WELL       | OM TOP O          | TIME                             | GPM                   | WELL,                  | WELL              |            |
| BOTTOM OF TEST HOLE   | 07,                                     | STATIS             | PUMP. WELL.   | OBS.<br>WELL       | OM. WELL.         | TIME                             | GPM                   | WELL  R LINE LER  MANG | WELL              |            |
| BOTTOM OF TEST HOLE  REMARKS                                    | 07,                                     | STATIS             | PUMP. WELL.   | OBS.<br>WELL       | OM. WELL.         | TIME                             | All                   | R LINE LE              | WELL              |            |
| BOTTOM OF TEST HOLE  REMARKS                                    | 07,                                     | STATIS QUALI       | LEVEL 2   | OBS. WELL  80 HARE | OME. WELL. ORIFIC | TIME                             | GPM  AII              | R LINE LES             | WELL              |            |
| BOTTOM OF TEST HOLE  REMARKS                                    | 07,                                     | STATIS QUALI       | PUMP. WELL.  LEVEL 2.  TY: PH  ODOR.  EFT: IN WELL  EN LEFT: IN W | OBS. WELL  80 HARE | OME. WELL ORIFIC  | TIME TIME IRON                   | AII LE ORS. WIEN ORS. | R LINE LES             | WELL  HGTH  AMERE |            |
| BOTTOM OF TEST HOLE  REMARKS                                    | 07,                                     | STATIS QUALI       | PUMP. WELL.   | OBS. WELL  80 HARE | OME. WELL ORIFIC  | TIME TIME IRON                   | AII LE ORS. WIEN ORS. | R LINE LES             | WELL  HGTH  AMERE |            |
| BOTTOM OF TEST HOLE  REMARKS  POM 123 TO  Pevelop 4 HRS         | 10T,<br>118<br>10FM. 5<br>Vac. 23       | STATIC QUALI       | PUMP. WELL.  LEVEL 2.  TY: PH  ODOR.  EFT: IN WELL  EN LEFT: IN W | OBS. WELL  80 HARE | OME. WELL ORIFIC  | TIME TIME IRON                   | AII LE ORS. WIEN ORS. | R LINE LES             | WELL  HGTH  AMERE |            |
| BOTTOM OF TEST HOLE  REMARKS  1-60 S  From 123 TO  EVELOP 4 HRS | EN SETTING ON SKETCH. MEASUREMENTS FROM | STATIC QUALI       | PUMP. WELL.  LEVEL 2.  TY: PH  ODOR.  EFT: IN WELL  EN LEFT: IN W | OBS. WELL  80 HARE | ON TOP O          | TIME  TIME  IRON  FT., IN  TO BE | AII L ORS. WI         | R LINE LES             | WELL  MGTH        |            |

# R. E. CHAPMAN CO.

OAKDALE. MASSACHUSETTS

DIAL 835-3727 - 835-3221

| - E         | ankent Mass                        |   |  |
|-------------|------------------------------------|---|--|
| Jate May.   |                                    | *************************************** |  |
| _ /<br>     | Finished                           |   |  |
| W. T. Fin   | Ros LOG OF HOLE by stole           | <del></del> /                           | · · · · · · · · · · · · · · · · · · ·                        |
| Depth       |                                    | r 30"<br>w.k                            | ration<br>poop<br>ches                                       |
| From To     | CLASSIFICATION of MATERIALS        | No. o. blo                              | re P<br>re P<br>re P<br>re P<br>re P<br>re P<br>re P<br>re P |
| 1           | 10 0 la melé famor                 | Rum                                     | Tan.   |
| 0"5         | Brown sind fine grevel i boun      |   |  |
|             | Brown firm chay                    | V                                       |  |
| 10 15 35    | Dear Prome clave.                  |   |  |
| 35 50'      | Benevir clay                       |   |  |
| 50' 60'     | Buren belt sout brown day          | 1 7                                     | <del></del> ,  |
| 60' 90'     | Deer selly son & mea, suffy        | 11 ay 201                               | <del>}</del>   |
| 40' 95'     | R. Digray selly sand mice ing      | Mary is                                 | 7  |
| 95 100'     |                                    |   | <u> </u>   |
| - ivo 103   | Day selly sand                     |   | ŞA, 12.  |
| 103 110     | Brown red band gravel.             | 110                                     | \$   |
|             |                                    |   |  |
|             |                                    | 1                                       | <u> </u>   |
| Vsedl.o.    | 6 ft inches of casing              |   | S <sup>rie</sup>   |
| Well rate   | d at 60 G.P.M. 14                  |   | acuun  |
| 1 Water lev | el is 10 6" ft. belo               | w groun                                 |  |
| - Remarks   | 121 5 1 60 1237 1226 PARELLE       | 11014                                   | <u></u><br>-0  |
| with.       | e 3 1/4 miss. DevelopeO<br>Left in | Encely                                  | <u> </u>   |
| il<br>      | Left w                             |   | *******  |
| <u> </u>    |                                    |   |  |
| Foreman     | Marge Devence                      |   |  |
|             |                                    |   |  |
|             |                                    |   |  |

## R. E. CHAPMAN CO.

OAKDALE, MASSACHUSETTS DIAL 835-3727 - 835-3221

Job Location Con Kerst Mass Date May 19, 1983 Hole No. 02 -Finished..... 15 66 Pole 31 acrossEOG OF HOLE statosic Depth CLASSIFICATION of MATERIALS From Ground But face Used 94 inches of casing

Well rated at..... 18 Water level is.

# AAPMAN CO.

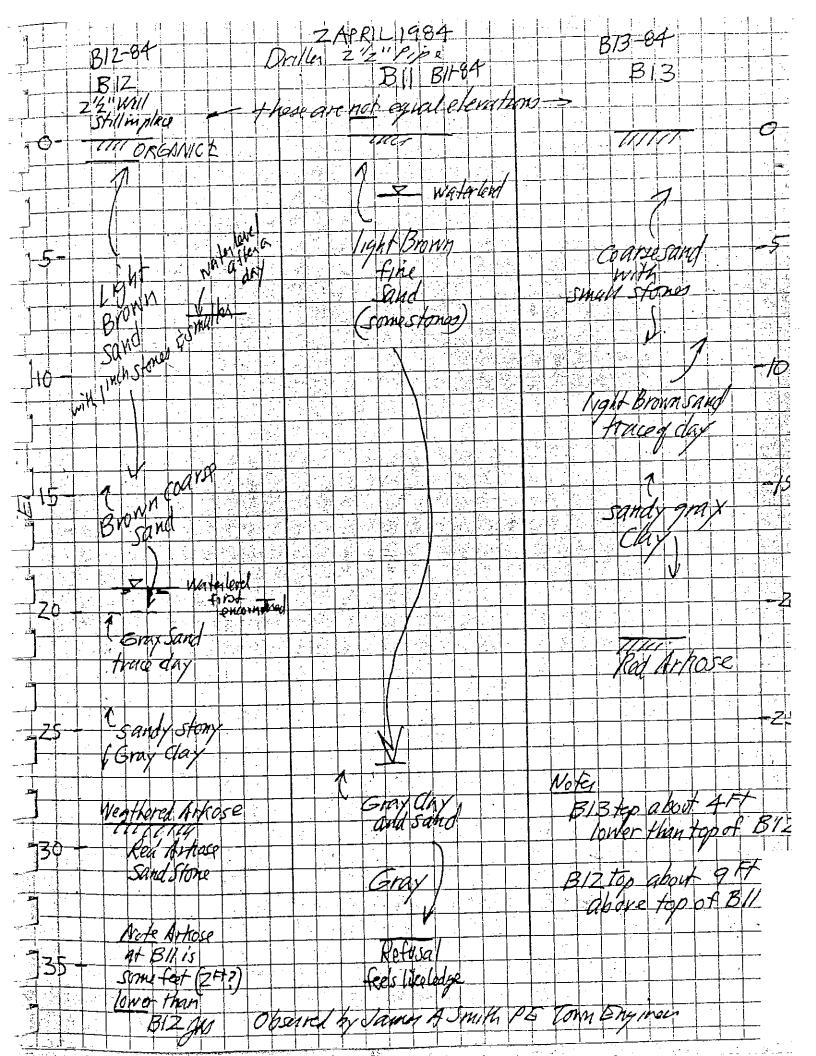
OAKDALE, MASSACHUSETTS

DIAL 835-3727 - 835-3221 46 Location am head 23,1283 Hole No. 03 .. Finished..... Station head LOG OF HOLETwood R.R. trecho Depth CLASSIFICATION of MATERIALS rum Found UI CARE inches of casing

below ground level

# R. E. CHAPMAN CO.

| Job Location amherst, Mass   |
|--|
| Date May 24 1983 Hole No. 04-93 Finished   |
| Date 11/24 1983 Hole 110   |
| Started Finished   |
| Started Rolog OF HOLE bed dander   |
|  |
| From To CLASSIFICATION of MATERIALS  |
| Ground<br>But face   |
| *o' 7' Brown Aand gand cha.  |
| 7 35 Dicy firm clay  |
| 35' 42' Brown Selty sand-soft (few)  |
| 42 49 Red fine to medium sand  |
| With I want war warra  |
| 56 16.3 16.0 NaneX 16  |
| 63 170 100 100 Clay  |
| THE THE THE THE THE THE THE THE THE THE  |
|  |
| Refuselat 17/  |
| 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  |
|  |
|  |
| Used 6.3 ft inches of casing   |
| Used B G.P.M. 26 Lbccs   |
| m Well rated at g-1" ft. below gr  |
| Well rated at B G.P.M. 26  Water level is 9-1"  Remarks 10 5 7 10 00 1 Acres from the control of |
| Remarks and down   |
| Les 69 67 minutes for water Dan-   |
| 1/2 vous   |
| Remarks De 1 5 of 20 Dest Markets for Lampsol and down 1/2 hour - 15 minutes for water Dang Temp 50 F Left in Foreman Serve Danger Levine  |
| Foreman  |





## SAMPLE/CORE LOG

| Boring/Weil 3-65 Project/No. NO9144 M Page of Location Arm HCRST MA Migreur to RR Started 10-30-6 Drilling Location Arm HCRST MA Migreur to RR Started 10-30-6 Drilling Completed 10-30-65  Total Depth Drilled 40 (feet)  Hole Diameter (inches) Coring Device Sample/ Coring Device Orbital Depth and Diameter of Coring Device Sampling Interval feet Drilling Fluid Used Drilling Method Drilling Contractor Hammer Hammer Weight Drop inches  Sample/Core Depth (feet) BAB Sample/Core Description From To Recovery Blows per 6 (feet) Sample Core Description From To Sample Core Description From To Sample Core Description From To Sample Core Description From To Sample Core Description From To Sample Core Description From To Sample Core Description From To Sample Core Description From To Sample Core Description From To Sample Core Description From To Sample Core Description From To Sample Core Description From To Sample From To Core To Sample From To Core To Sample From To Core To Sample From To Core To Sample From To Core To Sample From To Sam | ,             | 7-05              | k I         | اس ا سامه    | Pageof  |
|--|---------------|-------------------|-------------|--------------|---|
| Total Depth Drilled 40  (feet)  Type of Sample/ Hole Diameter (inches)  Coring Device  Length and Diameter of Coring Device  Drilling Fluid Used Drilling Method  Drilling Fluid Used Drilling Method  Drilling Fluid Used Drilling Method  Drilling |               |                   | ~           |              |   |
| Total Depth Drilled 40 (feet)  Type of Sample/ Coring Device  Length and Diameter (inches)  Drilling Fluid Used  Drilling Fluid Used  Drilling Method  Drilling | Site Location | AMHERST, 1        | 1 A Adjaces | n to RR      | Started 10-30-8 Completed 10-30-85              |
| Length and Diameter of Coring Device  Drilling Fluid Used  Drilling Fluid Used  Drilling Gentractor  Prepared By  Sample/Core Depth (feet)  From To  Core Recovery (feet)  Drilling Helper  Hammer Hammer Hammer  Weight Drop inches  Sample/Core Description  Sand) Fine to coarse, brown; wall rownoco will grown varied color; parting rownoco will grown varied color; parting rownoco yellow will gravel, varied color; parting rownoco yellow per fine to coarse, fine to ceres, (mosting made rownoco)  10 15 5 Sand, Fine to coarse, (mosting made rownoco)  Sand, Fine, I gift brown; well sourced and rownoco  Sand, Fine, I gift brown; well sourced and rownoco  Sand, Fine, I gift brown; well sourced and rownoco  Sand, Fine, I gift brown; well sourced and rownoco  Sand, Fine, I gift brown; well sourced and rownoco  Sand, Fine, I gift brown, well sourced an |               |                   |             | Type o       |   |
| Drilling Fluid Used  Drilling Fluid Used  Drilling Fluid Used  Drilling Method  Drilling Me |               |                   | (ind        | ches) Coring | Device  |
| Drilling Fluid Used  | Length and    | Diameter<br>evice |             |              | Sampling Intervalfeet                           |
| Drilling Contractor Prepared By  Sample/Core Depth (feet below land surface) From To  Core Recovery (feet)  Sand, Fine to coarse, (mostly medicane)  Graval, varied color; parting rounded  15 10 5 13 77111 of 5.14 10/14.  Square, Fine, 1 1944 brown; well sorted and rounded  Trace of 5.14 10/14.  Square, Fine, 1 1944 brown; well sorted and rounded  Square, Fine, 1 1944 brown; well sorted and rounded  Square, Fine, 1 1944 brown; well sorted and rounded  Square, Fine, 1 1944 brown; well sorted and rounded  Square, Fine, 1 1944 brown; well sorted and rounded  Square, Fine, 1 1944 brown; well sorted and rounded  Square, Fine, 1 1944 brown; well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded  Square, Fine, 1 1944 brown, well sorted and rounded   |               |                   | •           |              | Drilling Method                                 |
| Contractor  Prepared  By  BAB  Hammer  Hammer  Weight  Drop  Inches  Sample/Core Depth  (feet below land surface)  From  To  Recovery  (feet)  Core  Recovery  (feet)  SanD, Fine to coarse, prown; well rounded will  gravel, varied color; parting rounded  gravel, varied color; parting rounded  SanD, Fine, light brown; well sorted and rounded  Trice of SanD, Fine, light brown; well sorted and rounded  SanD, Fine, light brown; well sorted and rounded  Trice of SanD, Fine, light brown; well sorted and rounded  SanD, Fine, light brown; well sorted and rounded  SanD, Fine, light brown, well sorted and rounded  SanD, Fine, light brown, well sorted and rounded  SanD, Fine, light brown, well sorted and rounded  SanD, Fine, light brown, well sorted and rounded  SanD, Fine to coarse (mostly mid) facility  SanD, Fine to coarse (mostly mid) facility  SanD, Fine to coarse (mostly mid) facility  |               | d Used            |             | -            |   |
| Sample/Core Depth (feet below land surface) From To (feet)    Core Recovery (feet)   Sano) Fine to coarse, brown; well rounded with gravel, varied color; parting rounded well (ounded)   10   15   5   3   3   3   5   5   5   5   5  |               | <u> </u>          | <u> </u>    |              |   |
| Sample/Core Depth (feet below land surface)  From To (feet)  Sand) Fine to coarse, brown; well rounded with gravel, varied color; parting rounded will sorted and rounded to the surface of the surface o | Prepared      | •                 | BAB         | · /          | Weight Drop inches                              |
| From To Recovery Recovery Blows per 6 Inches Sample/Core Description    Core Recovery (feet)   SaND, Fine to coarse, brown; well rounded w/ gravel, varied color; parting rounded well formation   O   10   15   5   5   5   6   6   6   6   6   6   | Бу            |                   |             | •            |   |
| From To (test) Blows per 6 Inches Sample/Core Description    Company   Sand   Fine to coarse, brown; well rounded w/ gravel, varied color; parting rounded well (amady)   10   15   5   5   5   5   5   5   5   5  | Sample        | /Core Depth       | Com         |              |   |
| Sand, Fine to coarse, brown; well rounded w/ gravel, variet color; parting rounded  10 15 5 gravel, variet color; parting rounded  15 20 5 13 77144 of 5.14 trown; well sorted and rounded  20 25 5 15 Frace of silt & mice flakes  15 30 5 Groop circulation  20 35 5 Sand, Fine, light brown, well sorted and rounded  25 5 5 5 5 600 C.CC  26 5 5 5 5 5 5 5 5 600 C.CC  27 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5  | •             |                   | Recovery    | Blows per 6  | Sample/Core Description                         |
| Sans, Fine to course (mostly med well sand)  [10 15 5 gravel, yurish color; parting course)  [15 20 5 13 Trace of 5.14 10/14.  [16 20 5 15 Trace of 5.14 10/14.  [17 20 5 15 Trace of 5.14 10/14.  [18 20 25 5 15 Trace of 5.14 5 Mich flukes  [18 20 25 5 Trace of 5.14 5 Mich flukes  [19 20 25 5 Trace of 5.14 5 Mich flukes  [20 25 5 5 Trace of 5.14 5 Mich flukes  [20 25 5 5 Trace of 5.14 5 Mich flukes  [20 25 5 5 Trace of 5.14 5 Mich flukes  [20 25 5 5 Trace of 5.14 5 Mich flukes  [20 25 5 5 Trace of 5.14 5 Mich flukes  [20 25 5 5 Trace of 5.14 5 Mich flukes  [20 25 5 5 Trace of 5.14 5 Mich flukes  [20 25 5 5 Trace of 5.14 5 Mich flukes  [20 25 5 5 Trace of 5.14 5 Mich flukes  [20 25 5 5 Trace of 5.14 5 Mich flukes  [20 25 5 5 Tr | From          | 10                | (IDEL)      | 10.00        |   |
| graval, varied color; parting country  Sans, Fine, light from it; well souted and country  Sans, Fine, light from it; well souted and country  Sans, Fine, light from it; well souted and country  Sans, Fine, light from it; well souted and country  Sans, Fine, light brown, well souted and country  Sans Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well souted and country  South Fire, light brown, well south and country  South Fire, light br | 0             | 10                | 10          |              | gravel, variet color; party rounds              |
| 30 25 5 15 Trace or s. H 1 CAY.  Squp, Fine, light brown; well sorted and roundly  Squp, Fine, light brown, Well sorted and roundly  Sand, Fine, light brown, Well sorted and roundly  Song Fire, light brown, Well sorted and roundly  Song Fire, light brown, Well sorted and roundly  Song Fire, light brown, Well sorted and roundly  Song Fire, light brown, Well sorted and roundly  Song Fire to course (mostly med) fairly   | 10            | 15                |             |              | sens, time to color; boutty convers             |
| 30 35 5 Suno, Fine, light brown, Well sorted and founding  Sond Fire, light brown, Well sorted and coinded  Sond Fire, light brown, Well sorted and coinded  Sond Fire, light brown, Well sorted and coinded  Sond Fire to course (mostly mis) facilly   | <u> </u>      |                   |             | 10           | samp, Fine, light brown; well sorted and roman  |
| 30 35 5 Suno, Fine, light brown, Well sorted and founding  Sond Fire, light brown, Well sorted and coinded  Sond Fire, light brown, Well sorted and coinded  Sond Fire, light brown, Well sorted and coinded  Sond Fire to course (mostly mis) facilly   | 15            | 10                | 5           | 13           | Trace of S. 1+ 9 CAY. Well sorted and counties. |
| 35 5 Grass Circulation will south and courses  South Fire, light broad, well south and courses  South Fire to course (mostly mad) fairly   | 20            | 25                | 5           | 15           | Trace of sit & Mich flakes                      |
| 35 5 Suno Fire, light brown, well souther and restricted for the same (mostly miss) facilly  |               | 10                | 5           |              | Suno, Fine, light brown, Well sorted and lovery |
| do 35 5 SUND FINE to CONTR (MOSTY MED) failly  |               |                   |             |              | Sould Fire, light proud, well south and related |
| 35 40 5 25 sorted & Well LOUNDED. GOOD LITE  | ු දුර         | 35_               | 5           | · ·          | SUND FIRE to CONTSE (MOSTY MED) forcely         |
|  | 35            | 4.0               | 5           | 25           | sortel & Well LOUNDED. Good CITE                |
|  |               | 19                |             |              |   |
|  |               | · · ·             |             |              |   |
|  |               |                   |             |              |   |
|  |               |                   |             |              |   |
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|  |               |                   | <u> </u>    |              |   |
|  |               |                   |             |              |   |
|  |               |                   |             |              |   |
|  |               |                   |             |              |   |



# SAMPLE/CORE LOG

| Boring/Well 3-85 Project/No. Nog14Aml Page 1 o<br>Site Anhest Mr. Drilling Drilling Completed | <u> </u>                                     |
|---|--|
| Total Depth Drilled (feet)  Type of Sample/  Hole Diameter (inches) Coring Device             |  |
| Length and Diameter Sampling Interval   | feet   |
| Drilling Fluid Used Drilling Method  Drilling Fluid Used Driller Helper                       |  |
| Contractor Hammer Hammer Prepared PAR Weight Drop   |  |
| Sample/Core Depth Time/Hydraulic  | •  |
| (feet below land surface) Core Pressure or   (feet below land surface)   Core   Pressure or   | <del></del>                                  |
| COARSE SOND & GROVE (Fill material) w   | ·  |
| 10 15 5 7 clay 7 gray, firm; god ci   |  |
| 15 20 5 clarge gray firm, good circ<br>20 25 5 10 clarge gray firm, good circ                 | ۲۷.  |
| Class aromy times and the   |  |
| 30 5 Sand five, light brown; well sorted?   | round&g                                      |
| Souls PINE, light brown with Sitt   | Mall   |
| 40 46 6 suns, meo in to coarse; light be well sorted & Nell rounsed                           | (MN)   |
|   | <u>.                                    </u> |
|   |  |
|   |  |
|   |  |
|   |  |
|   |  |
|   | <u> </u>                                     |

| Client:       | DEPOISE                               | CONTRA   | · ·           | Τ .           | EABOARI                   | `              | Test Bor                                | ing/          |           |
|---------------|---------------------------------------|--|---------------|---------------|---------------------------|----------------|---|---------------|-----------|
|               |                                       |  | CIURS         |               | _                         |                | Monitor 1                               |               |           |
| l.            |                                       | AMHERST, MA DRILLING, INC. AMHERST WOODS P.O. BOX 3026 SPFLD, MA 01101 |               | MOUNTO        | Men ID.                   |                |   |               |           |
| _             |                                       |  | a laa         | t .           | 3026 SPFLD,<br>LING/SOIL  |                | Sheet No                                |               | WELL 1-03 |
| Contract      | ,                                     | oard Drillin   | Core Barrel   |               |                           | lb./fall-30'') |   | ' k           | 9/15/2003 |
|               | Casing                                | Sampler  | NX            | 4             | 2/30 300/                 |                | Finish:                                 |               | 9/15/2003 |
| Туре          | HW<br>4,0"                            | SS<br>2"   | 3 7/8"        | <del></del>   |                           | 7              | Driller:                                | FRANK HAR     |           |
| O.D. Inch     | 4.0"                                  | 1 3/8"   | 2"            | Rig Type      | . <u>D-33</u>             |                | Diffier.                                | FRANK DARG    | - CHARLOM |
| I.D. Inch     | Blow Per 6"                           | <del>}</del>   | <u> </u>      | -             | EIEI D CI                 | ASSIEICAT      | CIONS AND                               | REMARKS       |           |
| Depth (ft.)   | Blow Let 9.                           | Sample   | Recovery      | _             | LIEFD OF                  | Aggii ICA      | HONG AND                                | ILIIIAIIIO    | •         |
| Range<br>0-2' | 5-9-10-12                             | NO.  | 20"           | Brown Eine    | Sand, some sil            | <u> </u>       |   | ******        |           |
| 0-2           | 3-3-10-12                             | 3-1  |               | DIOMIT LINE   | Janu, Johns Jir           | <b>.</b>       |   |               |           |
| •             |                                       |  |               |               |                           |                | 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m |               |           |
| 5-7           | 7-8-8-10                              | S-2  | 20"           | Brown Fine S  | Sand, some sill           | i, 0-16" Brown | Fine Sand, trac                         | e siit 16-20" |           |
|               |                                       |  |               | Wet at 6'.0   |                           |                |   |               |           |
|               |                                       |  | ,             |               |                           |                |   |               |           |
|               |                                       |  |               | -             |                           |                |   |               |           |
|               |                                       |  |               |               |                           |                |   |               |           |
| 10-12'        | 6-7-6-10                              | S-3  | 14"           | Brown Fine t  | o Medium San              | d , wet        |   |               |           |
|               |                                       |  |               |               |                           |                |   |               |           |
|               |                                       |  |               |               |                           |                |   |               | ,         |
|               |                                       |  |               |               |                           |                |   |               |           |
|               |                                       |  |               |               |                           |                |   |               |           |
| 15-17'        | 4-6-8-11                              | \$ <del>-</del> 4  | 1             |               | Sand trace Silt,          | wet.           |   |               |           |
|               |                                       |  |               | SET WELL 1    | 5.0+3.0                   |                |   |               |           |
|               |                                       |  |               |               |                           |                |   |               |           |
|               | . 1                                   | •  |               |               |                           |                | *                                       |               |           |
|               | · · · · · · · · · · · · · · · · · · · |  |               |               |                           |                |   |               |           |
|               |                                       |  |               | WELL PROF     |                           | ~ 00DEEN       |   |               |           |
|               |                                       |  | . 1           |               | FEET 10 SLC               | I SCKEEN       |   |               |           |
| [             |                                       |  | į             |               | EET RISER                 | 15             |   |               |           |
| }             |                                       |  | 1             |               | FEET #2 SAN<br>EET BENTON |                | •                                       | •             |           |
|               |                                       |  |               |               | FEET TO SU                |                |   | <u> </u>      | •         |
| 1             |                                       |  |               | STAND UP      | 71                        | AG AGE         |   |               | j         |
|               | . (                                   | į  | ľ             | O IAND OI     | •                         |                |   |               | į         |
|               |                                       |  |               | •             |                           |                |   |               |           |
| İ             | }                                     |  |               |               |                           |                |   |               |           |
| ·             |                                       |  |               | ·             |                           |                |   |               |           |
|               | İ                                     |  |               |               |                           |                |   |               |           |
|               | ļ                                     |  | _             |               | -                         |                |   |               |           |
|               | .                                     |  | `,            |               |                           |                |   |               |           |
|               | SAMPLE P                              | ENETRATION   | RESISTANCE -  | 140 lb. Wt. F | alling 30" on 2           | " O.D. sampler |   |               |           |
| Densit        |                                       |  |               | Consistence   |                           |                |   | PROPORTION    | ıs        |
| # of Hammer   | Blows                                 | very loose   | # of Hammer B | lows          | very soft /               | soft           | trace                                   | 0 to 10%      |           |
| 0-4           |                                       | oose   | 0-2           | 3-4           | Med-stiff/                | stiff          | little                                  | 10 to 20%     |           |
| 5-9           | 1                                     | med/dense  | 5-8           | 9-15          | very stiff /              | hard           | some                                    | 20 to 35%     |           |
| · 10-29       | ],                                    | dense  | 16-30         | 31+ '         |                           |                | and                                     | 30 to 50%     |           |
| 30-49         | 50+ \                                 | ery dense  |               |               | ļ                         | -              | <u> </u>                                |               |           |

| [Oli t.        | DEDOICE                               | CONTRAC  | TOPS                              | SF              | ABOARD          |   | Test Bori       | ng/              |
|----------------|---------------------------------------|--|-----------------------------------|-----------------|-----------------|---|-----------------|------------------|
| Client:        |                                       | CONTRAC  | DRILLING, INC.   Monitor Well ID: |                 |                 | , |                 | - 1              |
|                | AMHERS                                |  |                                   |                 | 26 SPFLD, M     |   |                 | '                |
|                | AMHERS                                |  | · loc                             | P.O. BOX 30     | NG/SOIL L       | OG                                      | Sheet No        | WELL 2-03        |
| Contract       | or: Seabo                             |  | Core Barrel                       | Hammer          | (Weight-lb      | /fall-30")                              | Start:          | 9/15/2003        |
|                |                                       | Sampler  | NX                                | 140/            | 30 300/24       |   | Finish:         | 9/15/2003        |
| Type           | HW                                    | SS   | 3 7/8"                            | Rig Type:       |                 |   | Driller:        | FRANK HARRINGTON |
| O.D. Inch      | 4.0"                                  |  | 2"                                | Kig Type        | <del></del>     |   |                 |                  |
| I.D. Inch      | 4.0"                                  | 1 3/8"   | <u> </u>                          |                 | IFI D CLA       | SSIFICAT                                | IONS AND        | REMARKS          |
| Depth (ft.)    | Blow Per 6"                           | Sample   | Recovery                          | •               |                 |   |                 | ,                |
| Range          | 0.40.45.47                            | NO.  | 12"                               | Brown Fine to   | Medium Sand     | little Silt trace                       | gravel.         |                  |
| 0-2'           | 8-12-15-17                            | S-1  | 12                                |                 | incarent earner |   | ·               |                  |
|                |                                       |  |                                   |                 |                 |   |                 |                  |
| ٠.             |                                       |  | ,                                 |                 |                 |   |                 | ` .              |
|                |                                       |  |                                   | Į               |                 |   |                 |                  |
| <u> </u>       | 07.44.40.20                           | S-2  | 12"                               | Brown Fine to   | Coarse Sand a   | nd gravel trac                          | e silt.         |                  |
| 5-7'           | 27-41-49-32                           | 3-2  | 12                                |                 |                 |   |                 |                  |
|                |                                       |  |                                   |                 |                 |   |                 |                  |
|                |                                       |  |                                   |                 |                 |   | 4               |                  |
|                |                                       |  |                                   |                 |                 |   |                 |                  |
| 10.40          | 38-44-50-46                           | S-3  | 14"                               | Brown Fine to   | Coarse Sand a   | ind gravel trac                         | e silt.         |                  |
| 10-12          | 38-44-50-46                           | 3-3  | '7                                | WET AT 11'.0    |                 |   |                 |                  |
|                |                                       |  |                                   | VVEI AT TIS     |                 |   |                 |                  |
|                |                                       | Į  |                                   |                 |                 |   |                 |                  |
|                |                                       |  | ,                                 | İ               |                 |   | •               | ·                |
| 15 17          | 29-40-57-61                           | S-4  | 18"                               | Brown Fine to   | Coarse Sand.    | some silt, soп                          | ne gravel, wet. |                  |
| 15-17          | 29-40-57-01                           | 3-4  |                                   | DIOM: 1 IIIC 10 | 000.01 -1       | •                                       |                 |                  |
|                |                                       |  |                                   | SET WELL A      | T 18'.0 +3'.0   |   | •               | _                |
|                |                                       | İ  | ,                                 |                 |                 |   |                 | •                |
|                |                                       |  |                                   |                 |                 |   |                 |                  |
| <del>- :</del> |                                       |  |                                   | WELL PROFI      | LE:             |   |                 |                  |
|                | -                                     |  | -                                 | 18'.0 TO 8'.0 F |                 | r screen                                | -               |                  |
|                |                                       |  |                                   | 8'.0 TO 3'.0 FI |                 | •                                       |                 |                  |
|                |                                       |  |                                   | 18'.0 TO 6'.0 F |                 | D D                                     |                 |                  |
|                |                                       |  |                                   | 6.0 TO 4.0 F    |                 |   | _               |                  |
|                | <u> </u>                              | <u> </u>   |                                   | 4'.0 TO 2'.0 FI |                 |   |                 |                  |
|                |                                       |  |                                   | CEMENT 2'.0     |                 |   |                 |                  |
|                | •                                     |  |                                   | STAND UP        |                 | •                                       |                 |                  |
|                |                                       |  |                                   | -               |                 |   | -               |                  |
|                |                                       |  |                                   |                 |                 |   | <u></u>         |                  |
|                |                                       | <del>                                     </del> |                                   |                 |                 |   |                 | •                |
|                |                                       |  |                                   |                 |                 |   |                 |                  |
|                |                                       | 1  |                                   |                 |                 |   |                 | •                |
| -              |                                       |  |                                   |                 |                 |   |                 |                  |
|                | SAMPLE F                              | PENETRATIO                                       | N RESISTANCE                      | - 140 lb. Wt. F | alling 30" on 2 | " O.D. sample                           | <u> </u>        |                  |
| Den:           |                                       |  |                                   | e Consistence   |                 |   |                 | PROPORTIONS      |
| # of Harnn     |                                       | very loose                                       | # of Hammer                       |                 | very soft /     | soft                                    | trace           | 0 to 10%         |
| 0-             | · · · · · · · · · · · · · · · · · · · | loose  | 0-2                               | 3-4             | Med-stiff /     | stiff                                   | little          | 10 to 20%        |
| 5-             |                                       | med/dense  | 5-8                               | 9-15            | very stiff /    | hard                                    | some            | 20 to 35%        |
| 10-            |                                       | dense  | 16-30                             | 31+             |                 | -                                       | and -           | 30 to 50%        |
| 30-49          | 50+                                   | very dense                                       |                                   |                 |                 |   | <u> </u>        |                  |
| 00-43          | · · · · · · · · · · · · · · · ·       | 1,01, 001100                                     |                                   |                 |                 |   |                 | •                |

A-233-10-29A December 24, 2003

Ms. Catherine Hamilton
Department of Environmental Protection
Drinking Water Program
One Winter Street, 6th Floor
Boston, MA 02108

Re: Final Monitoring Well Information
Amherst Wellhead Protection Grant
Project #02-09

Dear Ms. Hamilton:

Pursuant to the Massachusetts Department of Environmental Protection (MADEP) Scope of Services for the Amherst Wellhead Protection Project, we have prepared this letter to present information concerning the new groundwater monitoring wells. Specifically, two wells (1-03 and 2-03) were installed within the Zone II area between the Town's public water supply wells and the closed landfill. The general site location is depicted on the Site Locus (Figure 1) and Massachusetts Geographic Information Systems (MassGIS) Map (Figure 2) in Appendix A. As shown on the Orthophoto (Figure 3), well 1-03 is located off the sewer pump station access road that intersects Woodlot Road, and well 2-03 was installed along the west side of Wildflower Drive at the intersection with Trillium Way.

## Well Installation

On September 15, 2003, a representative of Tighe & Bond was on-site to observe the installation of wells 1-03 and 2-03. A mobile drilling rig equipped with pre-cleaned 4¼-inch inside diameter (I.D.) hollow-stem augers was used for the project. During drilling, split-spoon samples were collected in 2-foot increments at 5-foot intervals. Soil samples collected in the split-spoons were examined to characterize subsurface materials. In general, sand, silt and gravel deposits were encountered in both soil borings. Soil descriptions are provided in the boring logs/well completion reports in Appendix B.

Monitoring wells were constructed in both soil borings using 2-inch I.D. PVC well materials, including a 10-foot length of 0.010-slot PVC well screen set across the observed water table. Wells 1-03 and 2-03 were installed to depths of 15 and 18 feet below grade, respectively. The wells were completed with a No. 2 graded silica sand pack, bentonite seal and a cemented standpipe (refer to boring logs/well completion reports in Appendix B). On behalf of the Town,



Tighe & Bond confirms that the monitoring well installations were completed in general accordance with MADEP guidance.

## Additional Tasks

The Town surveyed the monitoring wells using their existing control grid and the Massachusetts State Plane Mainland 2001 coordinate system. Survey data are presented below.

| Survey Data           | <u>Well 1-03</u> .                             | Well 2-03                                      |
|-----------------------|--|--|
| Coordinates (ft)      | Northing: 2953655.6550<br>Easting: 389307.1591 | Northing: 2952943.6954<br>Easting: 391253.4975 |
| Ground Elevation (ft) | 192.44   | 266.07   |
| Casing Elevation (ft) | 195.24   | 268.46   |
| PVC Elevation (ft)    | 194.97   | 268.18   |

As you know, groundwater samples will not be collected from wells 1-03 and 2-03 under the grant project. Rather, the wells have been incorporated into the Town's existing groundwater monitoring program. The new monitoring wells were initially sampled in November 2003.

If you have any questions or comments regarding the contents of this letter report, please contact Kimberly Longridge (413-572-3226 or kblongridge@tighebond.com) at your earliest convenience.

Very truly yours,

TIGHE & BOND, INC.

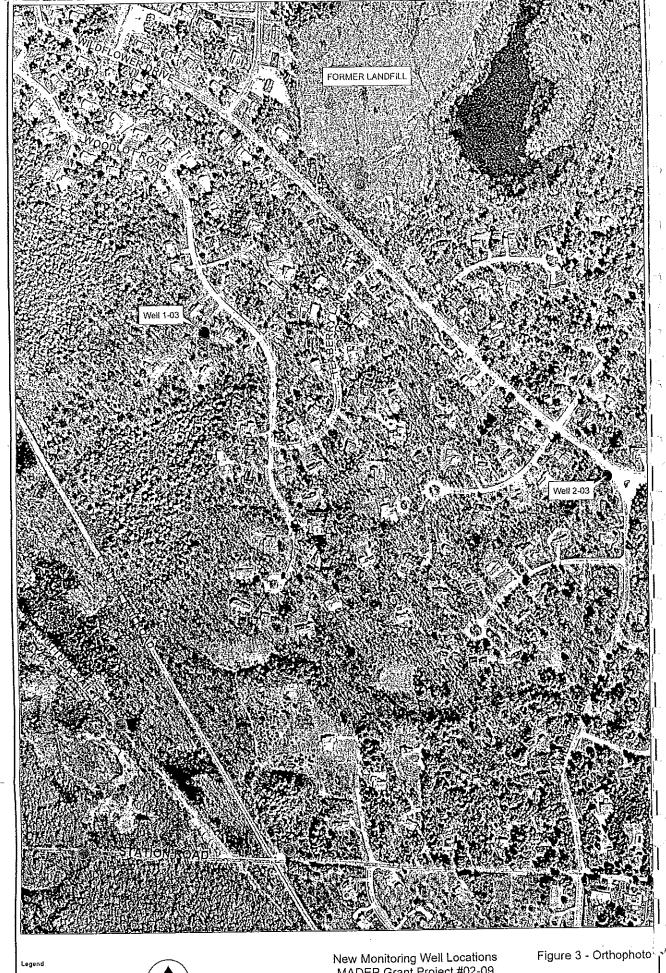
Omer H. Dumais, Jr., P.E

Vice President

J:\A\A0233\SWP-WHP PLAN\MONITORING WELLS\FINAL MADEP LTR(12-03).DOC

Enclosures

Copy: Robert Pariseau, Amherst DPW Jason Skeels, Amherst DPW Catherine Skiba, MADEP



Previous Monitoring Wells

New Mondoring Wells Zone It Area



Orthophoto - April 2001 1 inch equals 300 feet

New Monitoring Well Locations MADEP Grant Project #02-09 Amherst, Massachusetts

Tighe&Bond

a subsidiary of Geocomp Corporation

1145 Massachusetts AvenueBoxborough, MA 01719978 635 0424 Tel978 635 0266 Fax

| Trans         | mitta                                 |                          |                          |                |
|---------------|---------------------------------------|--------------------------|--------------------------|----------------|
|               | · · · · · · · · · · · · · · · · · · · |                          |                          |                |
| TO:           |                                       |                          |                          |                |
| Mr. Jeff Thel | en                                    |                          | DATE: 12/8/05            | GTX NO: 6369   |
| Tighe & Bon   | d                                     |                          | RE: Old Amherst Lar      | ndfill Project |
| 53 Southam    | pton Road                             |                          |                          |                |
| Westfield, M  | A 01085                               |                          | <u> </u>                 |                |
|               |                                       |                          |                          |                |
|               |                                       |                          |                          |                |
|               |                                       |                          | •                        |                |
|               |                                       | 1                        |                          |                |
| COPIES        | DATE                                  |                          | DESCRIPTION              |                |
|               | 12/8/05                               | December 2005 Laborate   |                          |                |
|               |                                       | 1 Moisture Content (AST  |                          | ,              |
|               |                                       | 1 Modified Proctor (ASTA |                          |                |
|               |                                       | 6 Flexible Wall Permeabl | lity Tests (ASTM D 5084) |                |
|               |                                       |                          |                          | · .            |
| REMARKS:      |                                       |                          |                          |                |
|               |                                       |                          |                          |                |
|               |                                       |                          |                          |                |
|               | ,                                     |                          |                          |                |
|               | _ ::                                  |                          |                          | //             |
|               |                                       | SIGNE                    | ED: (1/4) Y              |                |
| CC:           |                                       |                          | Joe Tomei – Laborato     | ry Manager     |

APPROVED BY:

Gary Torosian - Director of Testing Services

a subsidiary of Gaocomp Corporation

1145 Massachusetts Avenue Boxborough, MA 01719 978 635 0424 Tel 978 635 0266 Fax

# **Geotechnical Test Report**

December 8, 2005

# Old Amherst Landfill CSA Project

Amherst, MA

Prepared for:

Consulting Engineers • Environmental Specialists Tighe&Bond

Client: Tighe & Bond

Project: Old Amherst Landfill CSA

Location: Amherst, MA

Sample Type: bucket

Project No: Tested By: GTX-6369

Boring ID: ---

Sample ID:Station #25

Test Date: Sample Id: 12/08/05

36365

Checked By: n/a

pcs

Depth: ---Test Comment:

---

Sample Description: Moist, dark yellowish brown silty sand

Sample Comment:

# Moisture Content of Soil - ASTM D 2216

| Boring ID | Sample ID   | Depth | Description                            | Moisture<br>Content,% |
|-----------|-------------|-------|--|-----------------------|
|           | Station #25 |       | Moist, dark yellowish brown silty sand | 9                     |
|           |             |       |  |                       |

Notes: Temperature of Drying: 110º Celsius



Client: Tighe & Bond

Project:

Old Amherst Landfill CSA

Location:

Amherst, MA

Boring ID: ---

Sample Type: bucket

Project No: et Tested By: GTX-6369

Sample ID:Station #25

Test Date: Test Id: 11/25/05 Checked By:

82014

pcs jdt

Depth: -

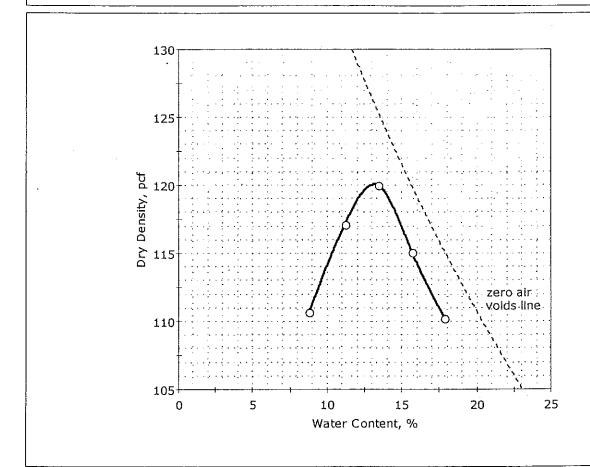
~~~

Test Comment: Sample Description: N

Moist, dark yellowish brown silty sand

Sample Comment:

# Compaction Report - ASTM D 1557



| Data Points         | Point 1 | Point 2 | Point 3 | Point 4 | Point.5 |
|---------------------|---------|---------|---------|---------|---------|
| Dry density, pcf    | 110.7   | 117.1   | 120.0   | 115.0   | 110.3   |
| Moisture Content, % | 8.8     | 11.2    | 13.4    | . 15.7  | 17.8    |

Method: A

Preparation: WET
As received Moisture:
Rammer: Manual

Zero voids line based on assumed specific gravity of 2.75

Maximum Dry Density=
Optimum Moisture=

120.0 pcf 13.0 %

a subsidiary of Geocomp Corporation

Tighe & Bond Client: Project Name: Old Amherst Landfill CSA Project Location: Amherst, MA GTX #: 6369 12/1/2005 Tested By: nar Start Date: Checked By: rmt 12/2/2005 End Date: Boring #: Station #25 Sample #: Depth: Moist, dark yellowish brown silty sand Visual Description:

# Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by ASTM D 5084 Constant Gradient

Sample Type:

remolded

Permeant Fluid:

de-aired tap water

Orientation:

Vertical

Cell #:

Sample Preparation:

Compacted with to 90% of the maximum dry density (120.0pcf) at the optimum moisture content (13%). Trimmings moisture content = 14.5%.

Final Initial Parameter

| Height, in              | 2.00 | 2.00 |
|-------------------------|------|------|
| Diameter, in            | 2.87 | 2.86 |
| Area, in <sup>2</sup>   | 6.47 | 6.42 |
| Volume, in <sup>3</sup> | 12.9 | 12.8 |
| Mass, g                 | 416  | 434  |
| Bulk Density, pcf       | 122  | 128  |
| Moisture Content, %     | 14   | 19   |
| Dry Density, pcf        | 107  | 108  |
| Degree of Saturation, % |      | 99   |

### **B COEFFICIENT DETERMINATION**

Cell Pressure, psi:

Pressure Increment, psi:

Sample Pressure, psi:

89.5

B Coefficient:

0.99

### **FLOW DATA**

|                                                              | Time,                            | Pr                                                   | essure, <sub> </sub>                                 | osi                                                  |                                                      |                                                             | Flow Vo                                                              | lume, cc                     |                                          | Temp,                            | -                               | Permeability<br>K @ 20 °C,    |
|--------------------------------------------------------------|----------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------|------------------------------|------------------------------------------|----------------------------------|---------------------------------|-------------------------------|
| Date                                                         | sec                              | Cell                                                 | Inlet                                                | Outlet                                               | Gradient                                             | In                                                          | Out                                                                  | ΔIn                          | △ Out                                    | °C                               | R <sub>t</sub>                  | cm/sec                        |
| 12/2<br>12/2<br>12/2<br>12/2<br>12/2<br>12/2<br>12/2<br>12/2 | 36<br><br>36<br><br>37<br><br>37 | 90.0<br>90.0<br>90.0<br>90.0<br>90.0<br>90.0<br>90.0 | 85.5<br>85.5<br>85.5<br>85.5<br>85.5<br>85.5<br>85.5 | 84.5<br>84.5<br>84.5<br>84.5<br>84.5<br>84.5<br>84.5 | 13.8<br>13.8<br>13.8<br>13.8<br>13.8<br>13.8<br>13.8 | 11.00<br>14.00<br>11.00<br>14.00<br>11.00<br>14.00<br>11.00 | 14.00<br>11.10<br>14.00<br>11.10<br>14.00<br>11.10<br>14.00<br>11.10 | 3.00<br>3.00<br>3.00<br>3.00 | 2.90<br><br>2.90<br><br>2.90<br><br>2.90 | 20<br><br>20<br><br>20<br><br>20 | 1.000<br><br>1.000<br><br>1.000 | 1.4E-04<br>1.4E-04<br>1.4E-04 |

PERMEABILITY AT  $20^{\circ}$  C:  $1.4 \times 10^{-4}$  cm/sec (@ 5 psi effective stress)

a subsidiary of Geocomp Corporation

Client: Tighe & Bond Project Name: Old Amherst Landfill CSA Project Location: Amherst, MA GTX #: 6369 Start Date: 12/1/2005 Tested By: nar End Date: 12/2/2005 Checked By: rmt Boring #: Sample #: Station #102 Depth: Visual Description: Moist, dark yellowish brown silty sand

# Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by ASTM D 5084 Constant Gradient

Sample Type:

remolded

Permeant Fluid:

de-aired tap water

Orientation:

Vertical

Cell #:

6/1/11

Sample Preparation:

Compacted with to 90% of the maximum dry density (120.0pcf) at the optimum moisture content (13%). Proctor values from Station #25 sample used. Trimmings moisture content = 13.8%.

| Parameter               | Initial | Final |  |  |
|-------------------------|---------|-------|--|--|
| Height, in              | 2.00    | 1.95  |  |  |
| Diameter, in            | 2.88    | 2.82  |  |  |
| Area, in <sup>2</sup>   | 6.51    | 6.25  |  |  |
| Volume, in <sup>3</sup> | 13.0    | 12.2  |  |  |
| Mass, g                 | 414     | 415   |  |  |
| Bulk Density, pcf       | 121     | 130   |  |  |
| Moisture Content, %     | 14      | 14    |  |  |
| Dry Density, pcf        | 106     | 114   |  |  |
| Degree of Saturation, % |         | 96    |  |  |

## **B COEFFICIENT DETERMINATION**

Cell Pressure, psi:

95.1

Pressure Increment, psi:

4.8

Sample Pressure, psi:

88.8

B Coefficient:

0.96

#### **FLOW DATA**

|                                                              | Time,                                | P                                                    | ressure,                                             | psi_                                                 |                                                              |                                                                      | Flow Vo                                                              | olume, cc                    |                                          | Temp,                            |                                 | Permeability<br>K @ 20 °C,                           |
|--------------------------------------------------------------|--------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------|------------------------------------------|----------------------------------|---------------------------------|------------------------------------------------------|
| Date                                                         | sec                                  | Cell                                                 | Inlet                                                | Outlet                                               | Gradient                                                     | In                                                                   | Out                                                                  | Δ <sub>In</sub>              | Δ Out                                    | <sup>¹</sup> °C                  | Rt                              | cm/sec                                               |
| 12/2<br>12/2<br>12/2<br>12/2<br>12/2<br>12/2<br>12/2<br>12/2 | 380<br><br>292<br><br>341<br><br>332 | 90.0<br>90.0<br>90.0<br>90.0<br>90.0<br>90.0<br>90.0 | 86.0<br>86.0<br>86.0<br>86.0<br>86.0<br>86.0<br>86.0 | 84.0<br>84.0<br>84.0<br>84.0<br>84.0<br>84.0<br>84.0 | 28.4<br>28.4<br>28.4<br>28.4<br>28.4<br>28.4<br>28.4<br>28.4 | 12.00<br>13.00<br>12.00<br>13.00<br>12.00<br>13.00<br>12.00<br>13.00 | 13.00<br>12.00<br>13.00<br>12.00<br>13.00<br>12.00<br>13.00<br>11.90 | 1.00<br><br>1.00<br><br>1.00 | 1.00<br><br>1.00<br><br>1.00<br><br>1.10 | 20<br><br>20<br><br>20<br><br>20 | 1.000<br><br>1.000<br><br>1.000 | 2.3E-06<br><br>3.0E-06<br><br>2.6E-06<br><br>2.8E-06 |

PERMEABILITY AT 20° C: 2.7 x 10<sup>-6</sup> cm/sec (@ 5 psi effective stress)

a subsidiary of Geocomp Corporation

Client: Tighe & Bond Project Name: Old Amherst Landfill CSA Project Location: Amherst, MA GTX #: 6369 12/1/2005 Start Date: Tested By: End Date: 12/2/2005 Checked By: rmt Boring #: Sample #: Station #121 Depth: Visual Description: Moist, dark yellowish brown silty sand

# Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by ASTM D 5084 Constant Gradient

Sample Type:

remolded

Permeant Fluid:

de-aired tap water

Orientation:

Vertical

Cell #:

10/16/4

Sample Preparation:

Compacted with to 90% of the maximum dry density (120.0pcf) at the optimum moisture content (13%).

Proctor values from Station #25 sample used. Trimmings moisture content = 13.8%.

| Parameter               | Initial | Final |  |  |
|-------------------------|---------|-------|--|--|
| Height, in              | 2.00    | 2.00  |  |  |
| Diameter, in            | 2.88    | 2.83  |  |  |
| Area, in <sup>2</sup>   | 6.51    | 6.29  |  |  |
| Volume, in <sup>3</sup> | 13.0    | 12.6  |  |  |
| Mass, g                 | 416     | 425   |  |  |
| Bulk Density, pcf       | 121     | 129   |  |  |
| Moisture Content, %     | 14      | 17    |  |  |
| Dry Density, pcf        | 106     | 110   |  |  |
| Degree of Saturation, % | # TO TO | 98    |  |  |

### **B COEFFICIENT DETERMINATION**

Cell Pressure, psi:

90.

Pressure Increment, psi:

4.9

Sample Pressure, psi:

89

B Coefficient:

0.98

### FLOW DATA

|      | Time, |      | ressure, i |        |          |       |       | olume, cc |       | Temp, |                | Permeability<br>K @ 20 °C, |
|------|-------|------|------------|--------|----------|-------|-------|-----------|-------|-------|----------------|----------------------------|
| Date | sec   | Cell | Inlet      | Outlet | Gradient | In    | Out   | ΔIn       | △ Out | °C    | R <sub>t</sub> | cm/sec                     |
| 12/2 |       | 90.0 | 85.5       | 84.5   | 13.8     | 11.00 | 14.00 |           |       |       |                |                            |
| 12/2 | 68    | 90.0 | 85.5       | 84.5   | 13.8     | 14.10 | 11.00 | 3.10      | 3.00  | 20    | 1.000          | 8.0E-05                    |
| 12/2 |       | 90.0 | 85.5       | 84.5   | 13.8     | 11,00 | 14.00 |           |       |       |                |                            |
| 12/2 | 61    | 90.0 | 85.5       | 84.5   | 13.8     | 14.00 | 11.10 | 3.00      | 2.90  | 20    | 1.000          | 8.6E-05                    |
| 12/2 |       | 90.0 | 85.5       | 84.5   | 13.8     | 11.00 | 14.00 |           |       |       |                |                            |
| 12/2 | 60    | 90.0 | 85.5       | 84.5   | 13.8     | 14.00 | 11.10 | 3.00      | 2.90  | 20    | 1.000          | 8.8E-05                    |
| 12/2 |       | 90.0 | 85.5       | 84.5   | 13.8     | 11.00 | 14.00 |           |       |       |                |                            |
| 12/2 | 63    | 90.0 | 85.5       | 84.5   | 13.8     | 14.00 | 11.00 | 3.00      | 3.00  | 20    | 1.000          | 8.5E-05                    |

PERMEABILITY AT 20° C: 8.5 x 10<sup>-5</sup> cm/sec (@ 5 psi effective stress)



a subsidiary of Geocomp Corporation

Client: Tighe & Bond Old Amherst Landfill CSA Project Name: Project Location: Amherst, MA GTX #: 6369 Start Date: 12/1/2005 Tested By: nar End Date: 12/2/2005 Checked By: rmt Boring #: Sample #: Station #136 Depth: Visual Description: Moist, dark yellowish brown silty sand

# Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by ASTM D 5084 Constant Gradient

Sample Type:

remolded

Permeant Fluid:

de-aired tap water

Orientation:

Vertical

Cell #:

9/19/15

Sample Preparation:

Compacted with to 90% of the maximum dry density (120.0pcf) at the optimum moisture content (13%).

Proctor values from Station #25 sample used. Trimmings moisture content = 13.8%.

| Parameter               | Initial | Final |  |  |
|-------------------------|---------|-------|--|--|
| Height, in              | 2.00    | 2.00  |  |  |
| Diameter, in            | 2.87    | 2.86  |  |  |
| Area, in <sup>2</sup>   | 6.47    | 6.42  |  |  |
| Volume, in <sup>3</sup> | 12.9    | 12.8  |  |  |
| Mass, g                 | 414     | 438   |  |  |
| Bulk Density, pcf       | 122     | 129   |  |  |
| Moisture Content, %     | 13      | 19    |  |  |
| Dry Density, pcf        | 108     | 108   |  |  |
| Degree of Saturation, % |         | 98    |  |  |

#### **B COEFFICIENT DETERMINATION**

Cell Pressure, psi:

95.2

Pressure Increment, psi:

4.9

Sample Pressure, psi:

89.5

B Coefficient:

0.98

### FLOW DATA

|      | Time, | Pi   | ressure, j | osi    |          | Flow Volume, cc |       |                 | Temp, |    | Permeability<br>K @ 20 °C, |         |
|------|-------|------|------------|--------|----------|-----------------|-------|-----------------|-------|----|----------------------------|---------|
| Date | sec . | Cell | Inlet      | Outlet | Gradient | In              | Out   | Δ <sub>In</sub> | Δ Out | °C | .R <sub>t</sub>            | cm/sec  |
| 12/2 |       | 90.0 | 85.5       | 84.5   | 13.8     | 11.00           | 13.90 |                 |       |    |                            |         |
| 12/2 | 65    | 90.0 | 85.5       | 84.5   | 13.8     | 14.00           | 11.00 | 3.00            | 2.90  | 20 | 1.000                      | 7.9E-05 |
| 12/2 |       | 90.0 | 85.5       | 84.5   | 13.8     | 11.00           | 13.90 |                 |       |    |                            |         |
| 12/2 | 60    | 90.0 | 85.5       | 84.5   | 13.8     | 14.00           | 10.90 | 3.00            | 3.00  | 20 | 1.000                      | 8.7E-05 |
| 12/2 |       | 90.0 | 85.5       | 84.5   | 13.8     | 11.00           | 14.00 |                 |       |    |                            |         |
| 12/2 | 61    | 90.0 | 85.5       | 84.5   | 13.8     | 14.00           | 11.00 | 3.00            | 3.00  | 20 | 1.000                      | 8.6E-05 |
| 12/2 |       | 90.0 | 85.5       | 84.5   | 13.8     | 11.00           | 14.10 |                 |       |    |                            |         |
| 12/2 | 61    | 90.0 | 85.5       | 84.5   | 13.8     | 14.00           | 11.10 | 3.00            | 3.00  | 20 | 1.000                      | 8.6E-05 |

PERMEABILITY AT 20° C: 8.4 x 10<sup>-5</sup> cm/sec (@ 5 psi effective stress)

a subsidiary of Geocomp Corporation

Client: Tighe & Bond Project Name: Old Amherst Landfill CSA Project Location: Amherst, MA GTX #: 6369 Start Date: 12/1/2005 Tested By: nar End Date: Checked By: 12/2/2005 rmt Boring #: Sample #: Station #149 Depth: Visual Description: Moist, dark yellowish brown silty sand

# Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by ASTM D 5084 Constant Gradient

Sample Type:

remolded

Permeant Fluid:

de-aired tap water

Orientation:

Vertical

Cell #:

ic anca tap nati

Sample Preparation:

Compacted with to 90% of the maximum dry density (120.0pcf) at the optimum moisture content (13%).

Proctor values from Station #25 sample used. Trimmings moisture content = 13.8%.

| Parameter               | Initial | Final |
|-------------------------|---------|-------|
| Height, in              | 2.00    | 2.00  |
| Diameter, in            | 2.88    | 2.85  |
| Area, in <sup>2</sup>   | 6.51    | 6.38  |
| Volume, in <sup>3</sup> | 13.0    | 12.8  |
| Mass, g                 | 415     | 439   |
| Bulk Density, pcf       | 121     | 131   |
| Moisture Content, %     | 13      | 20    |
| Dry Density, pcf        | · 107   | 109   |
| Degree of Saturation, % |         | 98    |

### B COEFFICIENT DETERMINATION

Cell Pressure, psi:

95.1

Pressure Increment, psi:

4.9

Sample Pressure, psi:

88.7

B Coefficient:

. 0.98

### FLOW DATA

|                                                              | Time,                            | Pi                                                   | essure,                                              | psi                                                          |                                                      |                                                         | Flow Vo                                                          | olume, cc                    |                                          | Temp,       |                                 | Permeability<br>K @ 20 °C,                           |
|--------------------------------------------------------------|----------------------------------|------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------|------------------------------|------------------------------------------|-------------|---------------------------------|------------------------------------------------------|
| Date                                                         | sec                              | Cell                                                 | Inlet                                                | Outlet                                                       | Gradient                                             | In                                                      | Out                                                              | Δ <sub>In</sub>              | △ Out                                    | °C          | R <sub>t</sub>                  | cm/sec                                               |
| 12/2<br>12/2<br>12/2<br>12/2<br>12/2<br>12/2<br>12/2<br>12/2 | 56<br><br>48<br><br>48<br><br>46 | 90.0<br>90.0<br>90.0<br>90.0<br>90.0<br>90.0<br>90.0 | 85.5<br>85.5<br>85.5<br>85.5<br>85.5<br>85.5<br>85.5 | 84.5<br>84.5<br>84.5<br>84.5<br>84.5<br>84.5<br>84.5<br>84.5 | 13.8<br>13.8<br>13.8<br>13.8<br>13.8<br>13.8<br>13.8 | 8.00<br>17.00<br>9.00<br>16.00<br>9.00<br>16.00<br>9.00 | 17.00<br>8.00<br>16.00<br>9.00<br>16.00<br>9.00<br>16.00<br>9.00 | 9.00<br><br>7.00<br><br>7.00 | 9.00<br><br>7.00<br><br>7.00<br><br>7.00 | 20 20 20 20 | 1.000<br><br>1.000<br><br>1.000 | 2.8E-04<br><br>2.6E-04<br><br>2.6E-04<br><br>2.7E-04 |

PERMEABILITY AT 20° C: 2.7 x 10<sup>-4</sup> cm/sec (@ 5 psi effective stress)

a subsidiary of Geocomp Corporation

| Client:             | Tighe & Bond                           |             |     |  |  |  |
|---------------------|----------------------------------------|-------------|-----|--|--|--|
| Project Name:       | Old Amherst Landfill CSA               |             |     |  |  |  |
| Project Location:   | Amnerst, MA                            |             |     |  |  |  |
| GTX #:              | 6369                                   |             |     |  |  |  |
| Start Date:         | 12/1/2005                              | Tested By:  | nar |  |  |  |
| End Date:           | 12/2/2005                              | Checked By: | rmt |  |  |  |
| Boring #:           | ***                                    |             |     |  |  |  |
| Sample #:           | Station #163                           | -           |     |  |  |  |
| Depth:              |                                        |             |     |  |  |  |
| Visual Description: | Moist, dark yellowish brown silty sand |             |     |  |  |  |

## Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by ASTM D 5084 Constant Gradient

Sample Type:

remolded

Permeant Fluid:

de-aired tap water

Orientation:

Vertical

Cell #:

4/---/10

Sample Preparation:

Compacted with to 90% of the maximum dry density (120.0pcf) at the optimum moisture content (13%).

Proctor values from Station #25 sample used. Trimmings moisture content = 13.8%.

| Parameter               | Initial | Final |  |  |
|-------------------------|---------|-------|--|--|
| Height, in              | 2.00    | 2.00  |  |  |
| Diameter, in            | 2.88    | 2.85  |  |  |
| Area, in <sup>2</sup>   | 6.51    | 6.38  |  |  |
| Volume, in <sup>3</sup> | 13.0    | 12.8  |  |  |
| Mass, g                 | 415     | 438   |  |  |
| Bulk Density, pcf       | 121     | 130   |  |  |
| Moisture Content, %     | 13      | 19    |  |  |
| Dry Density, pcf        | 107     | 109   |  |  |
| Degree of Saturation, % |         | 99    |  |  |

### **B COEFFICIENT DETERMINATION**

Cell Pressure, psi:

95.2

Pressure Increment, psi:

5 0.99

Sample Pressure, psi:

89.1

B Coefficient:

FLOW DATA

|      | Time, | Pı   | ressure, | psi    |          |       | Flow Vo | lume, cc       |       | Temp, |                | Permeability<br>K @ 20 °C, |
|------|-------|------|----------|--------|----------|-------|---------|----------------|-------|-------|----------------|----------------------------|
| Date | sec   | Cell | Inlet    | Outlet | Gradient | In    | Out     | $\Delta_{+In}$ | Δ Out | °C    | R <sub>t</sub> | cm/sec                     |
| 12/2 |       | 90.0 | 85.5     | 84.5   | 13.8     | 11.00 | 15.00   |                |       |       |                |                            |
| 12/2 | 24    | 90.0 | 85.5     | 84.5   | 13.8     | 15.00 | 10.05   | 4.00           | 4.95  | 20    | 1.000          | 3.3E-04                    |
| 12/2 |       | 90.0 | 85.5     | 84.5   | 13.8     | 9.00  | 16.00   |                |       |       | [              |                            |
| 12/2 | 34    | 90.0 | 85.5     | 84.5   | 13.8     | 16.00 | 9.00    | 7.00           | 7.00  | 20    | 1.000          | 3.6E-04                    |
| 12/2 |       | 90.0 | 85.5     | 84.5   | 13.8     | 10.00 | 15.00   |                | 1:    |       |                |                            |
| 12/2 | 25    | 90.0 | 85.5     | 84.5   | 13.8     | 14.95 | 10.10   | 4.95           | 4.90  | 20    | 1.000          | 3.5E-04                    |
| 12/2 |       | 90.0 | 85.5     | 84.5   | 13.8     | 9.00  | 16.00   |                |       |       |                |                            |
| 12/2 | 38    | 90.0 | 85.5     | 84.5   | 13.8     | 16.00 | 9.05    | 7.00           | 6.95  | 20    | 1.000          | 3.2E-04                    |

PERMEABILITY AT 20° C: 3.4 x 10<sup>-4</sup> cm/sec (@ 5 psi effective stress)

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#### WARRANTY and LIABILITY

GeoTesting Express (GTX) warrants that all tests it performs are run in general accordance with the specified test procedures and accepted industry practice. GTX will correct or repeat any test that does not comply with this warranty. GTX has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material

GTX may report engineering parameters that require us to interpret the test data. Such parameters are determined using accepted engineering procedures. However, GTX does not warrant that these parameters accurately reflect the true engineering properties of the *in situ* material. Responsibility for interpretation and use of the test data and these parameters for engineering and/or construction purposes rests solely with the user and not with GTX or any of its employees.

GTX's liability will be limited to correcting or repeating a test which fails our warranty. GTX's liability for damages to the Purchaser of testing services for any cause whatsoever shall be limited to the amount GTX received for the testing services. GTX will not be liable for any damages, or for any lost benefits or other consequential damages resulting from the use of these test results, even if GTX has been advised of the possibility of such damages. GTX will not be responsible for any liability of the Purchaser to any third party.

### Commonly Used Symbols

| Α                | pore pressure parameter for $\Delta\sigma_1 - \Delta\sigma_3$ | r                                 | temperature                                     |
|------------------|---------------------------------------------------------------|-----------------------------------|-------------------------------------------------|
| В                | pore pressure parameter for Δσ <sub>3</sub>                   | t                                 | time                                            |
| CIU              | isotropically consolidated undrained triaxial shear test      | Ů, UC                             | unconfined compression test                     |
| CR               | compression ratio for one dimensional consolidation           | UU, Q                             | unconsolidated undrained triaxial test          |
| C.               | coefficient of curvature, $(D_{30})^2/(D_{10} \times D_{60})$ |                                   |                                                 |
| Cu               | coefficient of uniformity, D <sub>60</sub> /D <sub>10</sub>   | $\mathbf{u_a}$                    | pore gas pressure                               |
| C <sub>c</sub>   | compression index for one dimensional consolidation           | u <sub>e</sub>                    | excess pore water pressure                      |
| C <sub>a</sub>   | coefficient of secondary compression                          | u, u <sub>w</sub>                 | pore water pressure                             |
| C <sub>u</sub>   | coefficient of consolidation                                  | V                                 | total volume                                    |
| -                |                                                               | $V_g$                             | volume of gas                                   |
| c<br>c'          | cohesion intercept for total stresses                         | $V_s$                             | volume of solids                                |
| D<br>D           | cohesion intercept for effective stresses                     | $V_{\mathbf{v}}$                  | volume of voids                                 |
|                  | diameter of specimen                                          | $V_{\rm w}$                       | volume of water                                 |
| $D_{10}$         | diameter at which 10% of soil is finer                        | V <sub>o</sub>                    | initial volume                                  |
| $D_{15}$         | diameter at which 15% of soil is finer                        | v                                 | velocity                                        |
| $D_{30}$         | diameter at which 30% of soil is finer                        | W                                 | total weight                                    |
| $D_{50}$         | diameter at which 50% of soil is finer                        | $W_s$                             | weight of solids                                |
| $D_{60}$         | diameter at which 60% of soil is finer                        | $W_{w}$                           | weight of water                                 |
| $D_{85}$         | diameter at which 85% of soil is finer                        | w                                 | water content                                   |
| $d_{50}$         | displacement for 50% consolidation                            | Wc                                | water content at consolidation                  |
| $d_{90}$         | displacement for 90% consolidation                            | Wf                                | final water content                             |
| $d_{100}$        | displacement for 100% consolidation                           | Wi                                | liquid limit                                    |
| E                | Young's modulus                                               | Wn                                | natural water content                           |
| e                | void ratio                                                    | W <sub>p</sub>                    | plastic limit                                   |
| ec               | void ratio after consolidation                                | w <sub>s</sub>                    | shrinkage limit                                 |
| e <sub>o</sub>   | initial void ratio                                            |                                   | initial water content                           |
| Ğ                | shear modulus                                                 | Wo, Wi                            |                                                 |
| G <sub>s</sub>   | specific gravity of soil particles                            | α                                 | slope of q <sub>f</sub> versus p <sub>f</sub>   |
| H.               | height of specimen                                            | α'                                | slope of qf versus pf'                          |
| PI               | plasticity index                                              | γι                                | total unit weight                               |
| i                | gradient                                                      | γa                                | dry unit weight                                 |
| K <sub>o</sub>   | lateral stress ratio for one dimensional strain               | $\gamma_{\rm s}$                  | unit weight of solids                           |
| k                | permeability                                                  | Ŷ₩                                | unit weight of water                            |
| LI               | •                                                             | 3                                 | strain                                          |
|                  | Liquidity Index                                               | $\epsilon_{ m vol}$               | volume strain                                   |
| $m_v$            | coefficient of volume change                                  | $\varepsilon_h$ , $\varepsilon_v$ | horizontal strain, vertical strain              |
| n<br>Dr          | porosity                                                      | μ                                 | Poisson's ratio, also viscosity                 |
| PI               | plasticity index                                              | σ                                 | normal stress                                   |
| $P_c$            | preconsolidation pressure                                     | σ,                                | effective normal stress                         |
| p <sub>.</sub>   | $(\sigma_1 + \sigma_3)/2$ , $(\sigma_v + \sigma_h)/2$         | σ <sub>c</sub> , σ' <sub>c</sub>  | consolidation stress in isotropic stress system |
| p'               | $(\sigma'_1 + \sigma'_3)/2$ , $(\sigma'_v + \sigma'_b)/2$     | σհ, σ'հ                           | horizontal normal stress                        |
| p'c              | p' at consolidation                                           | σ <sub>ν</sub> , σ' <sub>ν</sub>  | vertical normal stress                          |
| Q                | quantity of flow                                              | $\sigma_1$                        | major principal stress                          |
| $\mathbf{q}$     | $(\sigma_1, \sigma_3)/2$                                      | $\sigma_2$                        | intermediate principal stress                   |
| $q_f$            | q at failure                                                  | $\sigma_3$                        | minor principal stress                          |
| qo, qi           | initial q                                                     | τ                                 | shear stress                                    |
| $q_c$            | q at consolidation                                            | φ                                 | friction angle based on total stresses          |
| Š                | degree of saturation                                          | φ'                                | friction angle based on effective stresses      |
| SL               | shrinkage limit                                               | . Ψ',<br>φ'τ                      | residual friction angle                         |
| $S_{\mathbf{u}}$ | undrained shear strength                                      | Ψτ<br>Φult                        | φ for ultimate strength                         |
| T                | time factor for consolidation                                 | Ψult                              | φ τοι μιτιπιμιο αποιιβαι                        |
|                  |                                                               |                                   |                                                 |



# **ANALYTICAL REPORT**

RECEIVED

DEC 0 2 2005

TIGHE & BOND

Job Number: 360-540-1

Job Description: T&B Westfield

**F**ог:

Tighe & Bond 53 Southampton Road Westfield, MA 01085

Attention: Jeffery Thelen

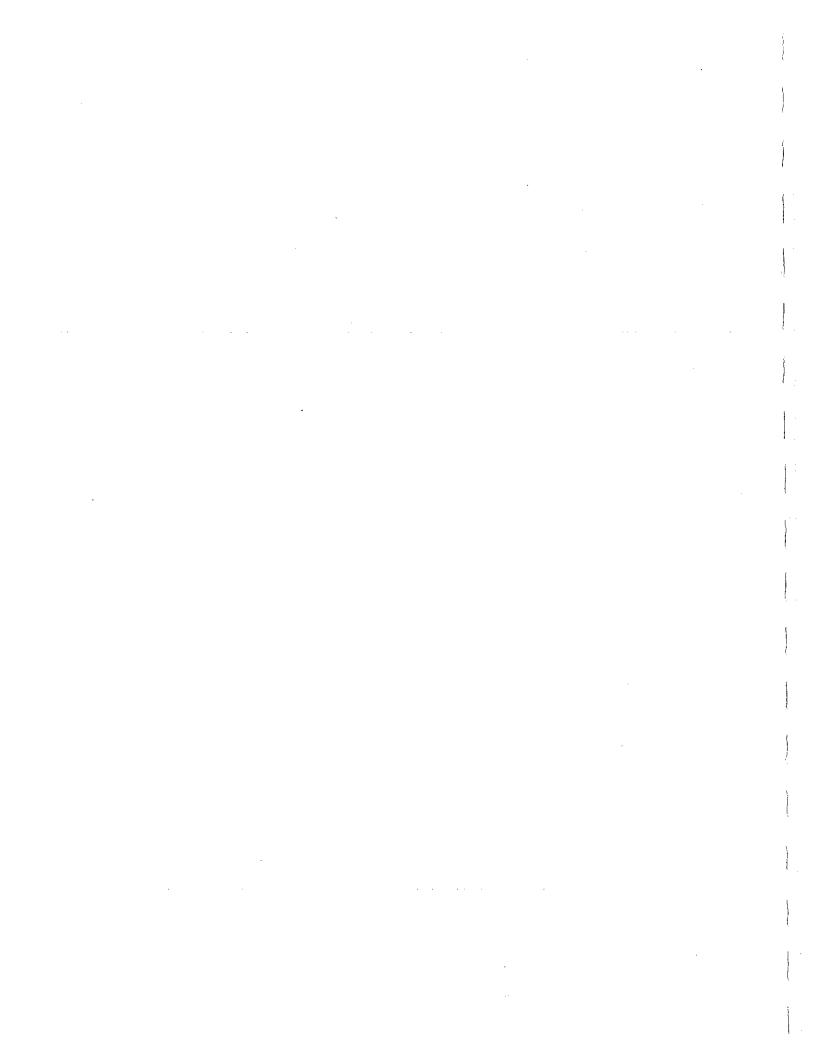
Jamie Wickham Project Manager II

jwickham@stl-inc.com

12/02/2005

Total number of pages in this report:

45



CASE NARRATIVE FOR REPORT NUMBER: 360-540

Client Name :

Tighe & Bond

Project Name:

A308

Date:

12/2/05

360-540-(1-8)

The Metals analyses were performed at STL-Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408.

## **METHOD SUMMARY**

Client: Tighe & Bond

Job Number: 360-540-1

| Description           |                                                | Lab Location       | Method      | Preparation Method |  |
|-----------------------|------------------------------------------------|--------------------|-------------|--------------------|--|
| Matrix: Solid         |                                                |                    |             |                    |  |
| Volatile Organic Comp | oounds by GC/MS<br>rstem Purge & Trap/Methanol | STL-WES<br>STL-WES | SW846 8260E | SW846 5035         |  |
| General Sub Contract  | ,                                              | STL-WES            | Subcontract |                    |  |

### LAB REFERENCES:

STL-WES = STL-Westfield

### **METHOD REFERENCES:**

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

## METHOD / ANALYST SUMMARY

Client: Tighe & Bond

Job Number: 360-540-1

| Method      | Analyst       | Analyst ID |  |  |
|-------------|---------------|------------|--|--|
| SW846 8260B | Cao, Xingluan | XC         |  |  |
|             |               |            |  |  |

## SAMPLE SUMMARY

Client: Tighe & Bond

Job Number: 360-540-1

| Lab Sample ID | Client Sample ID | Client Matrix | Date/Time<br>Sampled | Date/Time<br>Received |
|---------------|------------------|---------------|----------------------|-----------------------|
| 360-540-1     | #25              | Solid         | 11/17/2005 1040      | 11/17/2005 1610       |
| 360-540-2     | #102             | Solid         | 11/17/2005 1110      | 11/17/2005 1610       |
| 360-540-3     | #149             | Solid         | 11/17/2005 1135      | 11/17/2005 1610       |
| 360-540-4     | #121             | Solid         | 11/17/2005 1200      | 11/17/2005 1610       |
| 360-540-5     | #163             | Solid         | 11/17/2005 1230      | 11/17/2005 1610       |
| 360-540-6     | #136             | Solid         | 11/17/2005 1250      | 11/17/2005 1610       |
| 360-540-7     | #193             | Solid         | 11/17/2005 1310      | 11/17/2005 1610       |
| 360-540-8     | #142             | Solid         | 11/17/2005 1325      | 11/17/2005 1610       |

Job Number: 360-540-1

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Client Sample ID: #25

Lab Sample ID: 360-540-1

Date Sampled: 11/17/2005 1040 Date Received: 11/17/2005 1610

| Analyte                     | Result/Qualifier | Unit            | RL                        | Dilution |
|-----------------------------|------------------|-----------------|---------------------------|----------|
| Method: -8260B              | Date Prepared:   | 11/22/2005 1100 | Date Analyzed: 11/22/2005 | 2214     |
| Acetone                     | ND               | ug/Kg           | 260                       | 1.0      |
| Bromobenzene                | ND               | ug/Kg           | 2.6                       | 1.0      |
| Benzene                     | ND               | ug/Kg           | 2.6                       | 1.0      |
| Bromodichloromethane        | ND               | ug/Kg           | 2.6                       | 1.0      |
| Bromochloromethane          | ND               | ug/Kg           | 2.6                       | 1.0      |
| Bromoform                   | ND               | ug/Kg           | 2.6                       | 1.0      |
| Bromomethane                | ND               | ug/Kg           | 5.1                       | 1.0      |
| 2-Butanone (MEK)            | ND               | ug/Kg           | 20                        | 1.0      |
| Carbon tetrachloride        | ND               | ug/Kg           | 2.6                       | 1.0      |
|                             | ND ·             | ug/Kg           | 2.6                       | 1.0      |
| Chlorobenzene               | ND               | ug/Kg           | 2.6                       | 1.0      |
| Chlorodibromomethane        | ND               | ug/Kg           | 5.1                       | 1.0      |
| Chloroethane                | ND               | ug/Kg           | 2.6                       | 1.0      |
| Chloroform                  | ND               | ug/Kg           | 5.1                       | 1.0      |
| Chloromethane               | ND               | ug/Kg           | 2.6                       | 1.0      |
| 2-Chlorotoluene             | ND .             | ug/Kg           | 2.6                       | 1.0      |
| 4-Chlorotoluene             | ND               | ug/Kg           | 2.6                       | 1.0      |
| cis-1,2-Dichloroethene      | ND               | ug/Kg           | 2.6                       | 1.0      |
| trans-1,2-Dichloroethene    | ND               | ug/Kg           | 2.6                       | 1.0      |
| Dibromomethane              | ND<br>ND         | ug/Kg           | 2.6                       | 1.0      |
| 1,2-Dibromo-3-Chloropropane | ND<br>ND         | ug/Kg           | 2.6                       | 1.0      |
| 1,2-Dichlorobenzene         | ND<br>ND         | ug/Kg           | 2.6                       | 1.0      |
| 1,3-Dichlorobenzene         | ND<br>ND         | ug/Kg           | 2.6                       | 1.0      |
| 1,4-Dichlorobenzene         | ND<br>ND         | ug/Kg           | 2.6                       | 1.0      |
| 1,1-Dichloroethane          | ND<br>ND         | ug/Kg           | 2.6                       | 1.0      |
| 1,1-Dichloroethene          |                  | ug/Kg           | 2.6                       | 1.0      |
| 1,2-Dichloroethane          | ND<br>ND         | ug/Kg           | 2.6                       | 1.0      |
| 1,2-Dichloropropane         | ND<br>ND         | ug/Kg           | 2.6                       | 1.0      |
| 1,3-Dichloropropane         |                  | ug/Kg<br>ug/Kg  | 2.6                       | 1.0      |
| 2,2-Dichloropropane         | ND               | ug/Kg<br>ug/Kg  | 2.6                       | 1.0      |
| 1,1-Dichloropropene         | ND               | ug/Kg<br>ug/Kg  | 2.6                       | 1.0      |
| cis-1,3-Dichloropropene     | ND               | ug/Kg           | 2.6                       | . 1.0    |
| trans-1,3-Dichloropropene   | ND<br>NO         | ug/Kg<br>ug/Kg  | 2.6                       | 1.0      |
| Ethylbenzene                | ND               | ug/Kg<br>ug/Kg  | 2.6                       | 1.0      |
| Ethylene Dibromide          | ND               | ug/Kg<br>ug/Kg  | 2.6                       | 1.0      |
| Trichlorofluoromethane      | ND               | ug/Kg<br>ug/Kg  | 20                        | 1.0      |
| 2-Hexanone                  | ND               | ug/Kg           | 2.6 -                     |          |
| Hexachlorobutadiene         | ND               | ug/Kg           | 2.6                       | 1.0      |
| Isopropylbenzene            | ND               | ug/Kg<br>ug/Kg  | 20                        | 1.0      |
| 4-Methyl-2-pentanone (MIBK) | ND<br>ND         | ug/Kg<br>ug/Kg  | 5.1                       | 1.0      |
| Methylene Chloride          | ND               | ug/Kg<br>ug/Kg  | 2.6                       | 1.0      |
| n-Butylbenzene              | ND               | ug/Kg<br>ug/Kg  | 2.6                       | 1.0      |
| N-Propylbenzene             | ND               |                 | 26                        | 1.0      |
| Naphthalene                 | ND<br>ND         | ug/Kg<br>ug/Kg  | 2.6                       | 1.0      |
| m-Xylene & p-Xylene         | ND               | ugrNg           | 2.0                       | •        |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Job Number: 360-540-1

Client Sample ID: #25

Lab Sample ID: 360-540-1

Date Sampled: 11/17/2005 1040 11/17/2005 1610 Date Received:

70 - 130

Analyte Result/Qualifier Unit Dilution Method: 8260B Date Prepared: 11/22/2005 1100 Date Analyzed: 11/22/2005 2214 p-Isopropyltoluene ND ug/Kg 2.6 1.0 o-Xylene ND ug/Kg 2.6 1.0 sec-Butylbenzene ND ug/Kg 2.6 1.0 Styrene ND ug/Kg 2.6 1.0 tert-Butylbenzene ND ug/Kg 2.6 1.0 Tetrachloroethene ND ug/Kg 2.6 1.0 1,1,1,2-Tetrachloroethane ND ug/Kg 2.6 1.0 1,1,2,2-Tetrachloroethane ND 2.6 1.0 ug/Kg Toluene ND ug/Kg 2.6 1.0 1,2,3-Trichlorobenzene ND ug/Kg 2.6 1.0 1,2,4-Trichlorobenzene ND ug/Kg 2.6 1.0 1,1,1-Trichloroethane ND ug/Kg 2.6 1.0 1,1,2-Trichloroethane ND ug/Kg 2.6 1.0 Trichloroethene ND ug/Kg 2.6 1.0 1,2,3-Trichloropropane ND ug/Kg 2.6 1.0 1,2,4-Trimethylbenzene ND ug/Kg 2.6 1.0 1,3,5-Trimethylbenzene ND ug/Kg 2.6 1.0 Vinyl chloride ND ug/Kg 5,1 1.0 Methyl tert-butyl ether 2.6 1.0 ND ug/Kg Surrogate Acceptance Limits 1,2-Dichloroethane-d4 115 % 70 - 130 Dibromofluoromethane 104 % 70 - 130 Toluene-d8 98 % 70 - 130 4-Bromofluorobenzene

%

104

Job Number: 360-540-1

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Client Sample ID: #102

Lab Sample ID: 360-540-2

Date Sampled: 11/17/2005 1110

Date Received: 11/17/2005 1610

| Analyte                     | Result/Qualifier | Unit            | RL                        | Dilution |
|-----------------------------|------------------|-----------------|---------------------------|----------|
| Method: 8260B               | Date Prepared:   | 11/22/2005 1100 | Date Analyzed: 11/22/2005 | 2239     |
| Acetone                     | ND               | ug/Kg           | 230                       | 1.0      |
| Bromobenzene                | ND               | ug/Kg           | 2.3                       | 1.0      |
| Benzene                     | ND               | ug/Kg           | - 2.3                     | 1.0      |
| Bromodichloromethane        | ND               | ug/Kg           | 2.3                       | 1.0      |
| Bromochloromethane          | ND               | ug/Kg           | 2.3                       | 1.0      |
| Bromoform                   | ND               | ug/Kg           | 2.3                       | 1.0      |
| Bromomethane                | ND               | ug/Kg           | 4.7                       | 1.0      |
| 2-Butanone (MEK)            | ND               | ug/Kg           | 19                        | 1.0      |
| Carbon tetrachloride        | ND               | ug/Kg           | 2.3                       | 1.0      |
| Chlorobenzene               | ND               | ug/Kg           | 2.3                       | 1.0      |
| Chlorodibromomethane        | ND               | ug/Kg           | 2.3                       | 1.0      |
| Chloroethane                | ND               | ug/Kg           | 4.7                       | 1.0      |
| Chloroform                  | ND               | ug/Kg           | 2.3                       | 1.0      |
| Chloromethane               | ND               | ug/Kg           | 4.7                       | 1.0      |
| 2-Chlorotoluene             | ND               | ug/Kg           | 2.3                       | 1.0      |
| 4-Chlorotoluene             | ND               | ug/Kg           | 2.3                       | 1.0      |
| cis-1,2-Dichloroethene      | ND               | ug/Kg           | 2.3                       | 1.0      |
| trans-1,2-Dichloroethene    | ND               | ug/Kg           | 2.3                       | 1.0      |
| Dibromomethane              | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,2-Dibromo-3-Chloropropane | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,2-Dichlorobenzene         | ND               | ug/Kg           | 2.3                       | 1.0      |
|                             | ND<br>ND         | ug/Kg           | 2.3                       | 1.0      |
| 1,3-Dichlorobenzene         | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,4-Dichlorobenzene         | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,1-Dichloroethane          | ND<br>ND         | ug/Kg           | 2.3                       | 1.0      |
| 1,1-Dichloroethene          | ND<br>ND         | ug/Kg           | 2.3                       | 1.0      |
| 1,2-Dichloroethane          | ND<br>ND         | ug/Kg           | 2.3                       | 1.0      |
| 1,2-Dichloropropane         | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,3-Dichloropropane         |                  | ug/Kg<br>ug/Kg  | 2.3                       | 1.0      |
| 2,2-Dichloropropane         | ND<br>ND         | ug/Kg           | 2.3                       | 1.0      |
| 1,1-Dichloropropene         | ND               | ug/Kg<br>ug/Kg  | 2.3                       | 1.0      |
| cis-1,3-Dichloropropene     | ND<br>ND         | ug/Kg<br>ug/Kg  | 2.3                       | 1.0      |
| trans-1,3-Dichloropropene   |                  | ug/Kg<br>ug/Kg  | 2.3                       | 1.0      |
| Ethylbenzene                | ND               |                 | 2.3                       | 1.0      |
| Ethylene Dibromide          | ND               | ug/Kg           | 2.3                       | 1.0      |
| Trichlorofluoromethane      | ND               | ug/Kg           | 19                        | 1.0      |
| 2-Hexanone                  | ND               | ug/Kg           | 2.3                       | 1.0      |
| Hexachlorobutadiene         | ND               | ug/Kg           | 2.3                       | 1.0      |
| Isopropylbenzene            | ND               | ug/Kg           | 2.3<br>19                 | 1.0      |
| 4-Methyl-2-pentanone (MIBK) | ND.              | ug/Kg           | 4.7                       | 1.0      |
| Methylene Chloride          | ND               | ug/Kg           | 2.3                       | 1.0      |
| n-Butylbenzene              | ND               | ug/Kg           | 2.3<br>2.3                | 1.0      |
| N-Propylbenzene             | ND               | ug/Kg           | 2.3                       | 1.0      |
| Naphthalene                 | ND               | ug/Kg           | 2.3<br>2.3                | 1.0      |
| m-Xylene & p-Xylene         | ND               | ug/Kg           | 2.3                       | ,1.0     |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Job Number: 360-540-1

Client Sample ID: #102

Lab Sample ID: 360-540-2

Date Sampled: 11/17/2005 1110 Date Received: 11/17/2005 1610

| Analyte                   | Result/Qualifier | Unit            | RL                           | Dilution |
|---------------------------|------------------|-----------------|------------------------------|----------|
| Method: 8260B             | Date Prepared:   | 11/22/2005 1100 | Date Analyzed: 11/22/2005_ 2 | 239      |
| p-Isopropyltoluene        | ND               | ug/Kg           | 2.3                          | 1.0      |
| o-Xylene                  | ND               | ug/Kg           | 2.3                          | 1.0      |
| sec-Butylbenzene          | ND               | ug/Kg           | 2.3                          | 1.0      |
| Styrene                   | ND               | ug/Kg           | 2.3                          | 1.0      |
| tert-Butylbenzene         | ND               | ug/Kg           | 2.3                          | 1.0      |
| Tetrachloroethene         | ND               | ug/Kg           | 2.3                          | 1.0      |
| 1,1,1,2-Tetrachloroethane | ND               | ug/Kg           | 2.3                          | 1.0      |
| 1,1,2,2-Tetrachloroethane | ND               | ug/Kg           | 2.3                          | 1.0      |
| Toluene                   | ND               | ug/Kg           | 2.3                          | 1.0      |
| 1,2,3-Trichlorobenzene    | ND               | ug/Kg           | 2.3                          | 1.0      |
| 1,2,4-Trichlorobenzene    | ND               | ug/Kg           | 2.3                          | 1.0      |
| 1,1,1-Trichloroethane     | ND               | ug/Kg           | 2.3                          | 1.0      |
| 1,1,2-Trichloroethane     | ND               | ug/Kg           | 2.3                          | 1.0      |
| Trichloroethene           | ND               | ug/Kg           | 2.3                          | 1.0      |
| 1,2,3-Trichloropropane    | ND               | ug/Kg           | 2.3                          | 1.0      |
| 1,2,4-Trimethylbenzene    | ND               | ug/Kg           | 2.3                          | 1.0      |
| 1,3,5-Trimethylbenzene    | ND               | ug/Kg           | 2.3                          | 1.0      |
| Vinyl chloride            | ND               | ug/Kg           | 4.7                          | 1.0      |
| Methyl tert-butyl ether   | ND               | ug/Kg           | 2.3                          | 1.0      |
| Surrogate                 |                  |                 | Acceptance Limits            |          |
| 1,2-Dichloroethane-d4     | 113              | %               | 70 - 130                     |          |
| Dibromofluoromethane      | 103              | %               | 70 - 130                     |          |
| Toluene-d8                | 99               | %               | 70 - 130                     |          |
| 4-Bromofluorobenzene      | 104              | %               | 70 - 130                     |          |

Job Number: 360-540-1

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Client Sample ID: #149

Lab Sample ID: 360-540-3

Date Sampled: 11/17/2005 1135

Date Received: 11/17/2005 1610

| Analyte                     | Result/Qualifier | Unit            | RL                        | Dilution |
|-----------------------------|------------------|-----------------|---------------------------|----------|
| Method: 8260B               | Date Prepared:   | 11/22/2005 1100 | Date Analyzed: 11/23/2005 | 0107     |
| Acetone                     | ND               | ug/Kg           | 140                       | 1.0      |
| Bromobenzene                | ND               | ug/Kg           | 1.4                       | 1.0      |
| Benzene                     | ND               | ug/Kg           | 1.4                       | 1.0      |
| Bromodichloromethane        | ND               | ug/Kg           | 1.4                       | 1.0      |
| Bromochloromethane          | ND               | ug/Kg           | 1.4                       | 1.0      |
| Bromoform                   | ND               | ug/Kg           | 1.4                       | 1.0      |
| Bromomethane                | ND               | ug/Kg           | 2.8                       | 1.0      |
| 2-Butanone (MEK)            | ND               | ug/Kg           | 11                        | 1.0      |
| Carbon tetrachloride        | ND               | ug/Kg           | 1.4                       | 1.0      |
| Chlorobenzene               | ND               | ug/Kg           | 1.4                       | 1.0      |
| Chlorodibromomethane        | ND               | ug/Kg           | 1.4                       | 1.0      |
| Chloroethane                | ND               | ug/Kg           | 2.8                       | 1.0      |
| Chloroform                  | ND               | ug/Kg           | 1.4                       | 1.0      |
| Chloromethane               | ND               | ug/Kg           | 2.8                       | 1.0      |
| 2-Chlorotoluene             | ND               | ug/Kg           | 1.4                       | 1.0      |
|                             | ND               | ug/Kg           | 1.4                       | . 1.0    |
| 4-Chlorotoluene             | ND               | ug/Kg           | 1.4                       | 1.0      |
| cis-1,2-Dichloroethene      | ND               | ug/Kg           | 1.4                       | 1.0      |
| trans-1,2-Dichloroethene    | ND               | ug/Kg           | 1.4                       | 1.0      |
| Dibromomethane              | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,2-Dibromo-3-Chloropropane | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,2-Dichlorobenzene         | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,3-Dichlorobenzene         | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,4-Dichlorobenzene         | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,1-Dichloroethane          | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,1-Dichloroethene          | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,2-Dichloroethane          | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,2-Dichloropropane         | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,3-Dichloropropane         | ND               | ug/Kg           | 1.4                       | 1.0      |
| 2,2-Dichloropropane         | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,1-Dichloropropene         | ND               | ug/Kg           | 1.4                       | 1.0      |
| cis-1,3-Dichloropropene     | ND               | ug/Kg           | 1.4                       | 1.0      |
| trans-1,3-Dichloropropene   | ND               | ug/Kg           | 1.4                       | 1.0      |
| Ethylbenzene                | ND<br>ND         | ug/Kg           | 1.4                       | 1.0      |
| Ethylene Dibromide          | ND               | ug/Kg           | 1.4                       | 1.0      |
| Trichlorofluoromethane      | ND<br>ND         | ug/Kg           | · 11                      | 1.0      |
| 2-Hexanone                  | ND ·             | ug/Kg           | 1.4                       | 1.0      |
| Hexachlorobutadiene         | ND<br>ND         | ug/Kg           | 1.4                       | 1.0      |
| Isopropylbenzene            | ND<br>ND         | ug/Kg           | 11                        | 1.0      |
| 4-Methyl-2-pentanone (MIBK) | ND<br>ND         | ug/Kg           | 2.8                       | 1.0      |
| Methylene Chloride          | ND               | ug/Kg           | 1.4                       | 1.0      |
| n-Butylbenzene              | ND               | ug/Kg           | 1.4                       | 1.0      |
| N-Propylbenzene             | ND<br>ND         | ug/Kg           | 14                        | 1.0      |
| Naphthalene                 | ND               | ug/Kg           | 1.4                       | 1.0      |
| m-Xylene & p-Xylene         | מא               | ugang           | _                         |          |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Job Number: 360-540-1

Client Sample ID: #149

Lab Sample ID: 360-540-3

Date Sampled: 11/17/2005 1135 Date Received: 11/17/2005 1610

|                           |                  |                 | 2003 1010                 |          |
|---------------------------|------------------|-----------------|---------------------------|----------|
| Analyte                   | Result/Qualifier | Unit            | RL                        | Dilution |
| Method: 8260B             | Date Prepared:   | 11/22/2005 1100 | Date Analyzed: 11/23/2005 | 0107     |
| p-Isopropyltoluene        | ND               | ug/Kg           | 1.4                       | 1.0      |
| o-Xylene                  | ND               | ug/Kg           | 1.4                       | 1.0      |
| sec-Butylbenzene          | ND               | ug/Kg           | 1.4                       | 1.0      |
| Styrene                   | ND               | ug/Kg           | 1.4                       | 1.0      |
| tert-Butylbenzene         | ND               | ug/Kg           | 1,4                       | 1.0      |
| Tetrachloroethene         | ND ·             | ug/Kg           | 1.4                       | 1.0      |
| 1,1,1,2-Tetrachloroethane | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,1,2,2-Tetrachloroethane | ND               | ug/Kg           | 1.4                       | 1.0      |
| Toluene                   | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,2,3-Trichlorobenzene    | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,2,4-Trichlorobenzene    | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,1,1-Trichloroethane     | ND               | цg/Kg           | 1.4                       | 1.0      |
| 1,1,2-Trichloroethane     | ND .             | ug/Kg           | 1.4                       | 1.0      |
| Trichloroethene           | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,2,3-Trichloropropane    | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,2,4-Trimethylbenzene    | ND               | ug/Kg           | 1.4                       | 1.0      |
| 1,3,5-Trimethylbenzene    | ND               | ug/Kg           | 1.4                       | 1.0      |
| Vinyl chloride            | ND               | ug/Kg           | 2.8                       | 1.0      |
| Methyl tert-butyl ether   | ND               | ug/Kg           | 1.4                       | 1.0      |
| Surrogate                 |                  |                 | Acceptance Limits         |          |
| 1,2-Dichloroethane-d4     | 113              | %               | 70 - 130                  |          |
| Dibromofluoromethane      | 103              | %               | 70 - 130                  |          |
| Toluene-d8                | 98               | %               | 70 - 130                  |          |
| 4-Bromofluorobenzene      | 102              | %               | 70 - 130                  |          |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Client Sample ID: #121

Lab Sample ID: 360-540-4

Date Sampled: 11/17/2005 1200

Date Received: 11/17/2005 1610

| Analyte                     | Result/Qualifier | Unit            | RL                          | Dilution |
|-----------------------------|------------------|-----------------|-----------------------------|----------|
| Method: 8260B               | Date Prepared:   | 11/22/2005 1100 | - Date Analyzed: 11/22/2005 | 2304     |
| Acetone                     | ND               | ug/Kg           | 230                         | 1.0      |
| Bromobenzene                | ND               | ug/Kg           | 2.3                         | 1.0      |
| Benzene                     | ND               | ug/Kg           | 2.3                         | 1.0      |
| Bromodichloromethane        | ND               | ug/Kg           | 2.3                         | 1.0      |
| Bromochloromethane          | ND               | ug/Kg           | 2.3                         | 1.0      |
| Bromoform                   | ND               | ug/Kg           | 2.3                         | 1.0      |
| Bromomethane                | ND               | ug/Kg           | 4.5                         | 1.0      |
| 2-Butanone (MEK)            | ND               | ug/Kg           | 18                          | 1.0      |
| Carbon tetrachloride        | ND               | ug/Kg           | 2.3                         | 1.0      |
| Chlorobenzene               | ND               | ug/Kg           | 2.3                         | 1.0      |
| Chlorodibromomethane        | ND               | ug/Kg           | 2.3                         | 1.0      |
| Chloroethane                | ND               | ug/Kg           | 4.5                         | 1.0      |
| Chloroform                  | ND               | ug/Kg           | 2.3                         | 1.0      |
| Chloromethane               | ND               | ug/Kg           | 4.5                         | 1.0      |
| 2-Chlorotoluene             | ND               | ug/Kg           | 2.3                         | 1.0      |
| 4-Chlorotoluene             | ND               | ug/Kg           | 2.3                         | 1.0      |
| cis-1,2-Dichloroethene      | ND               | ug/Kg           | 2.3                         | 1.0      |
| trans-1,2-Dichloroethene    | ND               | ug/Kg           | 2.3                         | 1.0      |
| Dibromomethane              | ND               | ug/Kg           | 2.3                         | 1.0      |
| 1,2-Dibromo-3-Chloropropane | ND               | ug/Kg           | 2.3                         | 1.0      |
| 1,2-Dichlorobenzene         | ND               | ug/Kg           | 2.3                         | 1.0      |
| 1,3-Dichlorobenzene         | ND ·             | ug/Kg           | 2.3                         | 1.0      |
| 1,4-Dichlorobenzene         | ND               | ug/Kg           | 2.3                         | 1.0      |
| 1.1-Dichloroethane          | ND               | ug/Kg           | 2.3                         | 1.0      |
| 1,1-Dichloroethene          | ND               | ug/Kg           | 2.3                         | 1.0      |
| 1,2-Dichloroethane          | ND               | ug/Kg           | 2.3                         | 1.0      |
| 1,2-Dichloropropane         | ND               | ug/Kg           | 2.3                         | 1.0      |
| 1,3-Dichloropropane         | ND               | ug/Kg           | 2.3                         | 1.0      |
| 2,2-Dichloropropane         | ND               | ug/Kg           | 2.3                         | 1.0      |
| 1,1-Dichloropropene         | ND               | ug/Kg           | 2.3                         | 1.0      |
| cis-1,3-Dichloropropene     | ND               | ug/Kg           | 2.3                         | 1.0      |
| trans-1,3-Dichloropropene   | ND               | ug/Kg           | 2.3                         | 1.0      |
| Ethylbenzene                | ND               | ug/Kg           | 2.3                         | 1.0      |
| Ethylene Dibromide          | ND               | ug/Kg           | 2.3                         | 1.0      |
| Trichlorofluoromethane      | ND               | ug/Kg           | 2.3                         | 1.0      |
| 2-Hexanone                  | ND               | ug/Kg           | 18                          | 1.0      |
| Hexachlorobutadiene         | ND               | ug/Kg           | 2.3                         | 1.0      |
| Isopropylbenzene            | ND               | ug/Kg           | 2.3                         | 1.0      |
| 4-Methyl-2-pentanone (MIBK) | ND               | ug/Kg           | 18                          | 1.0      |
| Methylene Chloride          | ND               | ug/Kg           | 4.5                         | 1.0      |
| n-Butylbenzene              | ND               | ug/Kg           | 2.3                         | 1.0      |
| N-Propylbenzene             | ND               | ug/Kg           | 2.3                         | 1.0      |
| Naphthalene                 | ND               | ug/Kg           | 23                          | 1.0      |
| Haphiliaiono                | ND               | ug/Kg           | 2.3                         | 1.0      |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Job Number: 360-540-1

Client Sample ID: #121

Lab Sample ID: 360-540-4

Date Sampled: 11/17/2005 1200 Date Received: 11/17/2005 1610

| Analyte                   | Result/Qualifier | Unit            | RL                        | Dilution |
|---------------------------|------------------|-----------------|---------------------------|----------|
| Method: 8260B             | Date Prepared:   | 11/22/2005 1100 | Date Analyzed: 11/22/2005 | 2304     |
| p-Isopropyltoluene        | ND               | ug/Kg           | 2.3                       | 1.0      |
| o-Xylene                  | ND               | ug/Kg           | 2.3                       | 1.0      |
| sec-Butylbenzene          | ND               | ug/Kg           | 2.3                       | 1.0      |
| Styrene                   | ND               | ug/Kg           | 2.3                       | 1.0      |
| tert-Butylbenzene         | ND               | ug/Kg           | 2.3                       | 1.0      |
| Tetrachloroethene         | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,1,1,2-Tetrachloroethane | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,1,2,2-Tetrachloroethane | ND               | ug/Kg           | 2.3                       | 1.0      |
| Toluene                   | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,2,3-Trichlorobenzene    | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,2,4-Trichlorobenzene    | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,1,1-Trichloroethane     | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,1,2-Trichloroethane     | ND               | ug/Kg           | 2.3                       | 1.0      |
| Trichloroethene           | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,2,3-Trichloropropane    | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,2,4-Trimethylbenzene    | ND               | ug/Kg           | 2.3                       | 1.0      |
| 1,3,5-Trimethylbenzene    | ND               | ug/Kg           | 2.3                       | 1.0      |
| Vinyl chloride            | ND               | ug/Kg           | 4.5                       | 1.0      |
| Methyl tert-butyl ether   | ND               | ug/Kg           | 2.3                       | 1.0      |
| Surrogate                 |                  |                 | Acceptance Limits         | i        |
| 1,2-Dichloroethane-d4     | 112              | %               | 70 - 130                  |          |
| Dibromofluoromethane      | 103              | %               | 70 - 130                  |          |
| Toluene-d8                | 97               | %               | 70 - 130                  |          |
| 4-Bromofluorobenzene      | 104              | %               | 70 - 130                  |          |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Client Sample ID: #163

Lab Sample ID: 360-540-5

Date Sampled: 11/17/2005 1230

Date Received: 11/17/2005 1610

| Analyte                     | Result/Qualifier | Unit            | RL                        | Dilution |
|-----------------------------|------------------|-----------------|---------------------------|----------|
| Method: 8260B               | Date Prepared:   | 11/22/2005 1100 | Date Analyzed: 11/22/2005 |          |
| Acetone                     | ND               | ug/Kg           | 210                       | 1.0      |
| Bromobenzene                | ND               | ug/Kg           | 2.1                       | 1.0      |
| Benzene                     | ND               | ug/Kg           | 2.1                       | 1.0      |
| Bromodichloromethane        | ND               | ug/Kg           | 2.1                       | 1.0      |
| Bromochloromethane          | ND               | ug/Kg           | 2.1                       | 1.0      |
| Bromoform                   | ND               | ug/Kg           | 2.1                       | 1.0      |
| Bromomethane                | ND               | ug/Kg           | 4.1                       | 1.0      |
| 2-Butanone (MEK)            | ND               | ug/Kg           | 17                        | 1.0      |
| Carbon tetrachloride        | ND               | ug/Kg           | 2.1                       | 1.0      |
| Chlorobenzene               | ND               | ug/Kg           | 2.1                       | 1.0      |
| Chlorodibromomethane        | ND               | ug/Kg           | 2.1                       | 1.0      |
| Chloroethane                | ND               | ug/Kg           | 4.1                       | 1.0      |
| Chloroform                  | ND               | ug/Kg           | 2.1                       | 1.0      |
| Chloromethane               | ND               | ug/Kg           | 4.1                       | 1.0      |
| 2-Chlorotoluene             | ND               | ug/Kg           | 2.1                       | 1.0      |
| 4-Chlorotoluene             | ND               | ug/Kg           | 2.1                       | 1.0      |
| cis-1,2-Dichloroethene      | ND               | ug/Kg           | 2.1                       | 1.0      |
| trans-1,2-Dichloroethene    | ND               | ug/Kg           | 2.1                       | 1.0      |
| Dibromomethane              | ND               | ug/Kg           | 2.1                       | 1.0      |
| 1,2-Dibromo-3-Chloropropane | ND               | ug/Kg           | 2.1                       | 1.0      |
| 1,2-Dichlorobenzene         | ND               | ug/Kg           | 2.1                       | 1.0      |
| 1,3-Dichlorobenzene         | ND               | ug/Kg           | 2.1                       | 1.0      |
| 1,4-Dichlorobenzene         | ND               | ug/Kg           | 2.1                       | 1.0      |
| 1,1-Dichloroethane          | ND               | ug/Kg           | 2.1                       | 1.0      |
| 1,1-Dichloroethene          | ND               | ug/Kg           | 2.1                       | 1.0      |
| 1,2-Dichloroethane          | ND               | ug/Kg           | 2.1                       | 1.0      |
| 1,2-Dichloropropane         | ND               | ug/Kg           | 2.1                       | 1.0      |
| 1,3-Dichloropropane         | ND               | ug/Kg           | 2.1                       | 1.0      |
| 2,2-Dichloropropane         | ND               | ug/Kg           | 2.1                       | 1.0      |
| 1,1-Dichloropropene         | ND               | ug/Kg           | 2.1                       | 1.0      |
| cis-1,3-Dichloropropene     | ND               | ug/Kg           | 2.1                       | 1.0      |
| trans-1,3-Dichloropropene   | ND               | ug/Kg           | 2.1                       | 1.0      |
| Ethylbenzene                | ND               | ug/Kg           | 2.1                       | 1.0      |
| Ethylene Dibromide          | ND               | ug/Kg           | 2.1                       | 1.0      |
| Trichlorofluoromethane      | ND               | ug/Kg           | 2.1                       | 1.0      |
| 2-Hexanone                  | ND               | ug/Kg           | 17                        | 1.0      |
| Hexachlorobutadiene         | ND               | ug/Kg           | 2.1                       | 1.0      |
| Isopropylbenzene            | ND               | ug/Kg           | 2.1                       | 1.0      |
| 4-Methyl-2-pentanone (MIBK) | ND               | ug/Kg           | 17                        | 1.0      |
| Methylene Chloride          | ND               | ug/Kg           | 4.1                       | 1.0      |
| n-Butylbenzene              | ND               | ug/Kg           | 2.1                       | 1.0      |
| N-Propylbenzene             | ND               | ug/Kg           | 2.1                       | 1.0      |
| Naphthalene                 | ND               | ug/Kg           | 21                        | 1.0      |
| m-Xylene & p-Xylene         | ND               | ug/Kg           | 2.1                       | 1.0      |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Job Number: 360-540-1

Client Sample ID: #163

Lab Sample ID: 360-540-5

Date Sampled: 11/17/2005 1230 Date Received: 11/17/2005 1610

|                           |                  |                 | Date (Cooked: 11) 11/2000 TO K |          |
|---------------------------|------------------|-----------------|--------------------------------|----------|
| Analyte                   | Result/Qualifier | Unit            | RL                             | Dilution |
| Method: 8260B             | Date Prepared:   | 11/22/2005 1100 | Date Analyzed: 11/22/2005 2    | 2328     |
| p-Isopropyltoluene        | ND               | ug/Kg           | 2.1                            | 1.0      |
| o-Xylene                  | ND               | ug/Kg           | 2.1                            | 1.0      |
| sec-Butylbenzene          | ND               | ug/Kg           | 2.1                            | 1.0      |
| Styrene                   | ND               | ug/Kg           | 2.1                            | 1.0      |
| tert-Butylbenzene         | ND               | ug/Kg           | 2.1                            | 1.0      |
| Tetrachloroethene         | ND               | ug/Kg           | 2.1                            | 1.0      |
| 1,1,1,2-Tetrachloroethane | ND               | ug/Kg           | 2.1                            | 1.0      |
| 1,1,2,2-Tetrachloroethane | ND               | ug/Kg           | 2.1                            | 1.0      |
| Toluene                   | ND               | ug/Kg           | 2.1                            | 1.0      |
| 1,2,3-Trichlorobenzene    | ND               | ug/Kg           | 2.1                            | 1.0      |
| 1,2,4-Trichlorobenzene    | ND               | ug/Kg           | 2.1                            | 1.0      |
| 1,1,1-Trichloroethane     | ND               | ug/Kg           | 2.1                            | 1.0      |
| 1,1,2-Trichloroethane     | ND               | ug/Kg           | 2.1                            | 1.0      |
| Trichloroethene           | ND               | ug/Kg           | 2.1                            | 1.0      |
| 1,2,3-Trichloropropane    | ND               | ug/Kg           | 2.1                            | 1.0      |
| 1,2,4-Trimethylbenzene    | ND               | ug/Kg           | 2.1                            | 1.0      |
| 1,3,5-Trimethylbenzene    | ND               | ug/Kg           | 2.1                            | 1.0      |
| Vinyl chloride            | ND               | ug/Kg           | 4.1                            | 1.0      |
| Methyl tert-butyl ether   | ND               | ug/Kg           | 2.1                            | 1.0      |
| Surrogate                 |                  | -               | Acceptance Limits              |          |
| 1,2-Dichloroethane-d4     | 112              | %               | 70 - 130                       |          |
| Dibromofluoromethane      | 105              | %               | 70 - 130                       |          |
| Toluene-d8                | 99               | %               | 70 - 130                       |          |
| 4-Bromofluorobenzene      | 108              | %               | 70 - 130                       |          |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Client Sample ID: #136

Lab Sample ID: 360-540-6

Date Sampled: 11/17/2005 1250 Date Received: 11/17/2005 1610

| Analyte                     | Result/Qualifier | Unit            | RL                        | Dilution |
|-----------------------------|------------------|-----------------|---------------------------|----------|
| Method: 8260B               | Date Prepared:   | 11/22/2005 1100 | Date Analyzed: 11/22/2005 | 2353     |
| Acetone                     | ND               | ug/Kg           | 220                       | 1.0      |
| Bromobenzene                | ND               | ug/Kg           | 2,2                       | 1.0      |
| Benzene                     | ND               | ug/Kg           | 2.2                       | 1.0      |
| Bromodichloromethane        | ND               | ug/Kg           | 2.2                       | 1.0      |
| Bromochloromethane          | ND               | ug/Kg           | 2.2                       | 1.0      |
| Bromoform                   | ND               | ug/Kg           | 2.2                       | 1.0      |
| Bromomethane                | ND               | ug/Kg           | 4.4                       | 1.0      |
| 2-Butanone (MEK)            | ND               | ug/Kg           | 18                        | 1.0      |
| Carbon tetrachloride        | ND               | ug/Kg           | 2.2                       | 1.0      |
| Chlorobenzene               | ND               | ug/Kg           | 2.2                       | 1.0      |
| Chlorodibromomethane        | ND               | ug/Kg           | 2.2                       | 1.0      |
| Chloroethane                | ND               | ug/Kg           | 4.4                       | 1.0      |
| Chloroform                  | ND               | ug/Kg           | 2.2                       | 1.0      |
| Chloromethane               | ND               | ug/Kg           | 4.4                       | 1.0      |
| 2-Chlorotoluene             | ND               | ug/Kg           | 2.2                       | 1.0      |
| 4-Chlorotoluene             | ND               | ug/Kg           | 2.2                       | 1.0      |
| cis-1,2-Dichloroethene      | ND               | ug/Kg           | 2.2                       | 1.0      |
| trans-1,2-Dichloroethene    | ND               | ug/Kg           | 2.2                       | 1.0      |
| Dibromomethane              | ND               | ug/Kg           | 2.2                       | 1.0      |
| 1,2-Dibromo-3-Chloropropane | ND               | ug/Kg           | 2.2                       | 1.0      |
| 1,2-Dichlorobenzene         | ND               | ug/Kg           | 2.2                       | 1.0      |
| 1,3-Dichlorobenzene         | ND               | ug/Kg           | 2.2                       | 1.0      |
| 1,4-Dichlorobenzene         | ND               | ug/Kg           | 2.2                       | 1.0      |
| 1,1-Dichloroethane          | ND               | ug/Kg           | 2.2                       | 1.0      |
| 1,1-Dichloroethene          | ND               | ug/Kg           | 2.2                       | 1.0      |
| 1,2-Dichloroethane          | ND               | ug/Kg           | 2.2                       | 1.0      |
| 1,2-Dichloropropane         | ND               | ug/Kg           | 2.2                       | 1.0      |
| 1,3-Dichloropropane         | ND               | ug/Kg           | 2.2                       | 1.0      |
| 2.2-Dichloropropane         | ND               | ug/Kg           | 2.2                       | 1.0      |
| 1,1-Dichloropropene         | ND               | ug/Kg           | 2.2                       | 1.0      |
| cis-1,3-Dichloropropene     | ND               | ug/Kg           | 2.2                       | 1.0      |
| trans-1,3-Dichloropropene   | ND               | ug/Kg           | 2.2                       | 1.0      |
| Ethylbenzene                | ND               | ug/Kg           | 2.2                       | 1.0      |
| Ethylene Dibromide          | ND               | ug/Kg           | 2.2                       | 1.0      |
| Trichlorofluoromethane      | ND               | ug/Kg           | 2.2                       | 1.0      |
| 2-Hexanone                  | ND               | ug/Kg           | 18                        | 1.0      |
| Hexachlorobutadiene         | ND               | ug/Kg           | 2.2                       | 1.0      |
| Isopropylbenzene            | ND               | ug/Kg           | 2.2                       | 1.0      |
| 4-Methyl-2-pentanone (MIBK) | ND               | ug/Kg           | 18                        | 1.0      |
| Methylene Chloride          | ND               | ug/Kg           | 4.4                       | 1.0      |
| n-Butylbenzene              | ND               | ug/Kg           | 2.2                       | 1.0      |
| N-Propylbenzene             | ND               | ug/Kg<br>ug/Kg  | 2.2                       | 1.0      |
| Naphthalene                 | ND               | ug/Kg<br>ug/Kg  | 22                        | 1.0      |
| m-Xylene & p-Xylene         | ND               | ug/Kg           | 2.2                       | .1.0     |
| herysene a p-Aysene         | NO               | ugring          | 2.2                       |          |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Client Sample ID: #136

Lab Sample ID: 360-540-6

Date Sampled: 11/17/2005 1250 Date Received: 11/17/2005 1610

| RL<br>: 11/22/2008<br>2.2<br>2.2<br>2.2<br>2.2<br>2.2 | Dilution  5 2353  1.0  1.0  1.0  1.0                               |
|-------------------------------------------------------|--------------------------------------------------------------------|
| 2.2<br>2.2<br>2.2<br>2.2                              | 1.0<br>1.0<br>1.0                                                  |
| 2.2<br>2.2<br>2.2                                     | 1.0<br>1.0                                                         |
| 2.2<br>2.2                                            | 1.0                                                                |
| 2.2                                                   |                                                                    |
|                                                       | 1.0                                                                |
| 2.2                                                   |                                                                    |
|                                                       | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| 4.4                                                   | 1.0                                                                |
| 2.2                                                   | 1.0                                                                |
| ptance Limi                                           | its                                                                |
| 70 - 130                                              | •                                                                  |
| 70 - 130                                              |                                                                    |
| 70 - 130                                              |                                                                    |
| 70 - 130                                              |                                                                    |
| :                                                     | 2.2<br>2.2<br>2.2<br>2.2<br>2.2<br>2.2<br>2.2<br>2.2<br>2.2<br>2.2 |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Client Sample ID: #193

Lab Sample ID: 360-540-7

Date Sampled: 11/17/2005 1310 Date Received: 11/17/2005 1610

| Analyte                     | Result/Qualifier | Unit            | RL                        | Dilution |
|-----------------------------|------------------|-----------------|---------------------------|----------|
| Method: 8260B               | - Date Prepared: | 11/22/2005 1100 | Date Analyzed: 11/23/2005 | .0018    |
| Acetone                     | ND               | ug/Kg           | 250                       | 1.0      |
| Bromobenzene                | ND               | ug/Kg           | 2.5                       | 1.0      |
| Benzene                     | ND               | ug/Kg           | 2.5                       | 1.0      |
| Bromodichioromethane        | ND               | ug/Kg           | 2.5                       | 1.0      |
| Bromochloromethane          | ND               | ug/Kg           | 2.5                       | 1.0      |
| Bromoform                   | ND               | ug/Kg           | 2.5                       | 1.0      |
| Bromomethane                | ND               | ug/Kg           | 5.0                       | 1.0      |
| 2-Butanone (MEK)            | ND               | ug/Kg           | 20                        | 1.0      |
| Carbon tetrachloride        | ND               | ug/Kg           | 2.5                       | 1.0      |
| Chlorobenzene               | ND               | ug/Kg           | 2.5                       | 1.0      |
| Chlorodibromomethane        | ND               | ug/Kg           | 2.5                       | 1.0      |
| Chloroethane                | ND               | ug/Kg           | 5.0                       | 1.0      |
| Chloroform                  | ND               | ug/Kg           | 2.5                       | 1.0      |
| Chloromethane               | ND               | ug/Kg           | 5.0                       | 1.0      |
| 2-Chlorotoluene             | ND               | ug/Kg           | 2.5                       | 1.0      |
| 4-Chlorotoluene             | ND               | ug/Kg           | 2.5                       | 1.0      |
| cis-1,2-Dichloroethene      | ND               | ug/Kg           | 2.5                       | 1.0      |
| trans-1,2-Dichloroethene    | ND               | ug/Kg           | 2.5                       | 1.0      |
| Dibromomethane              | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,2-Dibromo-3-Chloropropane | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,2-Dichlorobenzene         | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,3-Dichlorobenzene         | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,4-Dichlorobenzene         | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1.1-Dichloroethane          | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,1-Dichloroethene          | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,2-Dichloroethane          | ND<br>ND         | ug/Kg           | 2.5                       | 1.0      |
| 1,2-Dichloropropane         | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,3-Dichloropropane         | ND               | ug/Kg           | 2.5                       | 1.0      |
| 2,2-Dichloropropane         | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,1-Dichloropropene         | ND               | ug/Kg           | 2.5                       | 1.0      |
| cis-1,3-Dichloropropene     | ND               | ug/Kg           | 2.5                       | 1.0      |
| trans-1,3-Dichloropropene   | ND<br>ND         | ug/Kg           | 2.5                       | 1.0      |
| Ethylbenzene                | ND               | ug/Kg           | 2.5                       | 1.0      |
| Ethylene Dibromide          | ND               | ug/Kg           | 2.5                       | 1.0      |
| Trichlorofluoromethane      | ND               | ug/Kg           | 2.5                       | 1.0      |
| 2-Hexanone                  | ND               | ug/Kg           | 20                        | 1.0      |
|                             | ND<br>ND         | ug/Kg<br>ug/Kg  | 2.5                       | 1.0      |
| Hexachlorobutadiene         | ND<br>ND         | ug/Kg<br>ug/Kg  | 2.5                       | 1.0      |
| Isopropylbenzene            | ND<br>ND         | ug/Kg<br>ug/Kg  | 20                        | 1.0      |
| 4-Methyl-2-pentanone (MIBK) | ND               | ug/Kg<br>ug/Kg  | 5.0                       | 1.0      |
| Methylene Chloride          |                  | ug/Kg<br>ug/Kg  | 2.5                       | 1.0      |
| n-Butylbenzene              | ND<br>ND         | ug/Kg<br>ug/Kg  | 2.5                       | 1.0      |
| N-Propylbenzene             |                  | ug/Kg<br>ug/Kg  | 2.5<br>25                 | 1.0      |
| Naphthalene                 | ND               |                 | 2.5                       | 1.0      |
| m-Xylene & p-Xylene         | ND               | ug/Kg           | 2,0                       | .1.0     |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Client Sample ID: #193

Lab Sample ID: 360-540-7

Date Sampled: 11/17/2005 1310 Date Received: 11/17/2005 1610

| Analyte                   | Result/Qualifier | Unit            | RL                        | Dilution |
|---------------------------|------------------|-----------------|---------------------------|----------|
| Method: 8260B             | Date Prepared:   | 11/22/2005 1100 | Date Analyzed: 11/23/2005 | 0018     |
| p-Isopropyltoluene        | ND               | ug/Kg           | 2.5                       | 1.0      |
| o-Xylene                  | ND               | ug/Kg           | 2.5                       | 1.0      |
| sec-Butylbenzene          | ND               | ug/Kg           | 2.5                       | 1.0      |
| Styrene                   | ND               | ug/Kg           | 2.5                       | 1.0      |
| tert-Butylbenzene         | ND               | ug/Kg           | 2.5                       | 1.0      |
| Tetrachloroethene         | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,1,1,2-Tetrachioroethane | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,1,2,2-Tetrachioroethane | ND               | ug/Kg           | 2.5                       | 1.0      |
| Toluene                   | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,2,3-Trichlorobenzene    | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,2,4-Trichlorobenzene    | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,1,1-Trichloroethane     | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,1,2-Trichloroethane     | ND               | ug/Kg           | 2.5                       | 1.0      |
| Trichloroethene           | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,2,3-Trichloropropane    | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,2,4-Trimethylbenzene    | ND               | ug/Kg           | 2.5                       | 1.0      |
| 1,3,5-Trimethylbenzene    | ND               | ug/Kg           | 2.5                       | 1.0      |
| Vinyl chloride            | ND               | ug/Kg           | 5.0                       | 1.0      |
| Methyl tert-butyl ether   | ND               | ug/Kg           | 2.5                       | 1.0      |
| Surrogate                 |                  |                 | Acceptance Limits         | 3        |
| 1,2-Dichloroethane-d4     | 113              | %               | 70 - 130                  |          |
| Dibromofluoromethane      | 103              | %               | 70 - 130                  |          |
| Toluene-d8                | 98               | %               | 70 - 130                  |          |
| 4-Bromofluorobenzene      | 106              | %               | 70 - 130                  |          |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Client Sample ID: #142

Lab Sample ID: 360-540-8

Date Sampled: 11/17/2005 1325 Date Received: 11/17/2005 1610

| Analyte                     | Result/Qualifier | Unit            | RL                        | Dilution |
|-----------------------------|------------------|-----------------|---------------------------|----------|
| Method: 8260B               | Date Prepared:   | 11/22/2005 1100 | Date Analyzed: 11/23/2005 | 0042     |
| Acetone                     | ND               | ug/Kg           | 260                       | 1.0      |
| Bromobenzene                | ND               | цg/Kg           | 2.6                       | 1.0      |
| Benzene                     | ND               | ug/Kg           | 2.6                       | 1.0      |
| Bromodichloromethane        | ND               | ug/Kg           | 2.6                       | 1.0      |
| Bromochloromethane          | ND               | ug/Kg           | 2.6                       | 1.0      |
| Bromoform                   | ND               | ug/Kg           | 2.6                       | 1.0      |
| Bromomethane                | ND               | ug/Kg           | 5.3                       | 1.0      |
| 2-Butanone (MEK)            | ND               | ug/Kg           | 21                        | 1.0      |
| Carbon tetrachloride        | ND               | ug/Kg           | 2.6                       | 1.0      |
| Chlorobenzene               | ND               | ug/Kg           | 2.6                       | 1.0      |
| Chlorodibromomethane        | ND               | ug/Kg           | 2.6                       | 1.0      |
| Chloroethane                | ND               | ug/Kg           | 5.3                       | 1.0      |
| Chloroform                  | ND               | ug/Kg           | 2.6                       | 1.0      |
| Chloromethane               | ND               | ug/Kg           | 5.3                       | 1.0      |
| 2-Chlorotoluene             | ND               | ug/Kg           | 2.6                       | 1.0      |
| 4-Chlorotoluene             | ND               | ug/Kg           | 2.6                       | 1.0      |
| cis-1,2-Dichloroethene      | ND               | ug/Kg           | 2.6                       | 1.0      |
| trans-1,2-Dichloroethene    | ND               | ug/Kg           | 2.6                       | 1.0      |
| Dibromomethane              | ND               | ug/Kg           | 2.6                       | 1.0      |
|                             | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,2-Dibromo-3-Chloropropane | ND               | ug/Kg<br>ug/Kg  | 2.6                       | 1.0      |
| 1,2-Dichlorobenzene         | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,3-Dichlorobenzene         |                  | ug/Kg<br>ug/Kg  | 2.6                       | 1.0      |
| 1,4-Dichlorobenzene         | ND               |                 | 2.6                       | 1.0      |
| 1,1-Dichloroethane          | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,1-Dichloroethene          | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,2-Dichloroethane          | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,2-Dichloropropane         | ND               | ug/Kg           |                           | 1.0      |
| 1,3-Dichloropropane         | ND               | ug/Kg           | 2.6                       | 1.0      |
| 2,2-Dichloropropane         | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,1-Dichloropropene         | ND               | ug/Kg           | 2.6                       |          |
| cis-1,3-Dichloropropene     | ND               | ug/Kg           | 2.6                       | 1.0      |
| trans-1,3-Dichloropropene   | ND .             | ug/Kg           | 2.6                       | 1.0      |
| Ethylbenzene                | ND               | ug/Kg           | 2.6                       | 1.0      |
| Ethylene Dibromide          | ND               | ug/Kg           | 2.6                       | 1.0      |
| Trichlorofluoromethane      | ND               | ug/Kg           | 2.6                       | 1.0      |
| 2-Hexanone                  | ND               | ug/Kg           | 21                        | 1.0      |
| Hexachlorobutadiene         | ND               | ug/Kg           | 2.6-                      | 1.0      |
| Isopropylbenzene            | ND               | ug/Kg           | 2.6                       | 1.0      |
| 4-Methyl-2-pentanone (MIBK) | ND               | ug/Kg           | 21                        | 1.0      |
| Methylene Chloride          | ND               | ug/Kg           | 5.3                       | 1.0      |
| n-Butylbenzene              | ND               | ug/Kg           | 2.6                       | 1.0      |
| N-Propylbenzene             | ND               | ug/Kg           | 2.6                       | 1.0      |
| Naphthalene                 | ND               | ug/Kg           | 26                        | 1.0      |
| m-Xylene & p-Xylene         | ND               | ug/Kg           | 2.6                       | .1.0     |

Jeffery Thelen Tighe & Bond 53 Southampton Road Westfield, MA 01085

Job Number: 360-540-1

Client Sample ID: #142

Lab Sample ID: 360-540-8

Date Sampled:

11/17/2005 1325 Date Received: 11/17/2005 1610

| Analyte                   | Result/Qualifier | Unit            | RL                        | Dilution |
|---------------------------|------------------|-----------------|---------------------------|----------|
| Method: 8260B             | Date Prepared:   | 11/22/2005 1100 | Date Analyzed: 11/23/2005 | 0042     |
| p-Isopropyltoluene        | ND               | ug/Kg           | 2.6                       | 1.0      |
| o-Xylene                  | ND               | ug/Kg           | 2.6                       | 1.0      |
| sec-Butylbenzene          | ND               | цg/Кg           | 2.6                       | 1.0      |
| Styrene                   | ND               | ug/Kg           | 2.6                       | 1.0      |
| tert-Butylbenzene         | ND               | ug/Kg           | 2.6                       | 1.0      |
| Tetrachloroethene         | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,1,1,2-Tetrachloroethane | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,1,2,2-Tetrachloroethane | ND               | ug/Kg           | 2.6                       | 1.0      |
| Toluene                   | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,2,3-Trichlorobenzene    | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,2,4-Trichlorobenzene    | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,1,1-Trichloroethane     | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,1,2-Trichloroethane     | ND               | ug/Kg           | 2.6                       | 1.0      |
| Trichloroethene           | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,2,3-Trichloropropane    | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,2,4-Trimethylbenzene    | ND               | ug/Kg           | 2.6                       | 1.0      |
| 1,3,5-Trimethylbenzene    | ND               | ug/Кg           | 2.6                       | 1.0      |
| Vinyl chloride            | ND               | ug/Kg           | 5.3                       | 1.0      |
| Methyl tert-butyl ether   | ND               | ug/Kg           | 2.6                       | 1.0      |
| Surrogate                 |                  |                 | Acceptance Limits         |          |
| 1,2-Dichloroethane-d4     | 112              | %               | 70 - 130                  |          |
| Dibromofiuoromethane      | 103              | %               | 70 - 130                  |          |
| Toluene-d8                | 99               | %               | 70 - 130                  |          |
| 4-Bromofluorobenzene      | 111              | %               | 70 - 130                  |          |

## LOGIN SAMPLE RECEIPT CHECK LIST

Client: Tighe & Bond Job Number: 360-540-1

Login Number: 540

| Question                                                                         | T/F/NA | Comment |
|----------------------------------------------------------------------------------|--------|---------|
| Radioactivity either was not measured or, if measured, is at or below background | NA     |         |
| The cooler's custody seal, if present.                                           | NA     |         |
| The cooler or samples do not appear to have been compromised or tampered with    | . True |         |
| Samples were received on ice.                                                    | True   |         |
| Cooler Temperature is acceptable.                                                | False  | 8.8 C   |
| Cooler Temperature is recorded.                                                  | True   |         |
| COC is present.                                                                  | True   |         |
| COC is filled out in ink and legible.                                            | True   |         |
| COC is filled out with all pertinent information.                                | True   |         |
| There are no discrepancies between the sample IDs on the containers and the COC. | True   |         |
| Samples are received within Holding Time.                                        | True   |         |
| Sample containers have legible labels.                                           | True   |         |
| Containers are not broken or leaking.                                            | True   |         |
| Sample collection date/times are provided.                                       | True   | -       |
| Appropriate sample containers are used.                                          | True   |         |
| Sample bottles are completely filled.                                            | True   |         |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True   |         |
| VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.     | NA     |         |
| If necessary, staff have been informed of any short hold time or quick TAT needs | True   |         |
| Multiphasic samples are not present                                              | True   |         |
| Samples do not require splitting or compositing                                  | True   |         |

## SUBCONTRACTED DATA